

AMERICAN BEE JOURNAL

Vol. LXXII—No. 7

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Use Your Own Honey and Don't Rob Peter to Pay Paul

By Walter H. Hull
Virginia

WE beekeepers are an inconsistent lot. We wail over competition of other sweets with honey—and buy sugar ourselves by the ton. We lament the glutted condition of honey markets and buy sugar to replace honey that should have been left on the hives.

Many an honest beekeeper would rather take a beating than try to sell anything. He endures the punishment of selling only because necessity compels him to turn his crop into cash. Yet that same beekeeper will repeatedly take honey from his bees that they need, add it to the amount he must sell, and then take good American dollars and buy sugar to replace honey for winter stores and spring brood rearing.

Perhaps I should not blame him. I have done it myself times a-plenty. And yet perhaps for that very reason I can blame him with a clear conscience. I realize some beekeepers do not make a practice of feeding sugar in quantity, but the one who feeds none at all is a rare specimen, and those who feed a great deal are, I believe, plenty numerous to justify the charge of widespread malpractice in this respect.

Not that there is anything wrong about feeding sugar for winter stores or for stimulation, under ordinary circumstances, but prevailing conditions make it a bad policy. Although sugar is not a competitor of honey in the sense that honey can entirely displace it, we all recognize the fact that honey can and should be used in many ways where sugar is used now.

We urge beekeepers to eat their own product and relieve the market. We eat honey ourselves, checking off every pound thus consumed as a pound less weight on a weak market. And while the cook racks her brains for ways to substitute a little honey here and there for sugar, we drive off to town and buy a couple of tons of sugar to replace the honey.



Quite a bit of material has appeared from the pen of Walter H. Hull. Many beekeepers have other professions. Mr. Hull was a brass cutter in the earlier days and later became editor of a house organ and a writer for various papers, including the "Industrial Record" and "Success Magazine." He is now a consulting business engineer.

During his career he has always been a beekeeper, having worked with Holtermann in Ontario; in Connecticut, and now with 250 colonies of bees in Virginia, particularly for "pollination" purposes. We feel that he thinks pretty clearly about bees.

We don't even try to make the merchant take honey in payment for

the sugar. If we do, I have seen no mention of it. It wouldn't look quite so bad if we made a practice of bartering honey for sugar. It would get the honey off our hands, leaving us that much less to turn into cash, and there would be at least a chance to break even on the sugar deal—a chance which is very slight after we have gone to all the trouble of selling the honey somewhere else and then taking the cash to pay for sugar.

With the basic price of honey around 5 cents a pound, and sugar at 4½, what does it profit a man to extract his honey down to the last pound (or even the last fifty pounds) and throw it onto an already glutted market, at the expense of labor, containers, overhead, etc., and then take this hard-earned money to the merchant in payment for sugar to feed the bees? Perhaps this is all too obvious to mention; yet it is the sort of obvious thing that is too often overlooked.

It seems to me that the beekeeper, in common with people of every calling, once in a while get something akin to the swarming fever. There is much buzzing and running around, but no one seems to know just what for. But what does that matter? He buzzes just the same. And meanwhile practical questions of everyday good sense are neglected. Nor does it make much difference in the final result whether they are merely overlooked or plumb forgotten.

We are passing through a mild flurry of that sort now. Not that conditions are so prosperous; prosperity seems to have little effect on the phenomenon. Business is basically sound, perhaps more so now than ever, and that is what counts. I think the underlying cause is the advent of package bees solving so many problems that have heretofore beset the northern beekeeper.

Package bees make it perfectly feasible for the northern man to kill

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his bees in the fall, extract the honey they would have wintered on, and sell it; and with the money buy package bees in the spring, feed them sugar syrup, and have everything ready for the harvest, right on the dot.

His wintering problems are absent, control of disease is easy and effectual, since there is no need for keeping the colonies alive whether they are suspected of being diseased or not, and everything can be thoroughly disinfected before the next season. Colonies from packages will be of uniform strength, reducing the cost of operation; young queens will insure thriving colonies for the harvest and little trouble from swarming.

Theoretically the scheme is perfect. Its weakness lies in the fact that the honey which would have gone toward wintering bees and building them up is extracted and thrown onto an already weak market, and beekeepers suffer accordingly. Every pound of sugar so used adds one more pound of honey to the amount that must be sold. My guess is that the amount so used would run into many hundreds of tons.

Even so, it is less, I believe, than the amount used by beekeepers who winter their bees. Despite the growth of the food chamber idea, some spring feeding is often needed, and generally much fall feeding; and sugar is used. The food chamber is often filled with sugar syrup instead of combs of honey.

With the price of honey as it is, the honey taken from those combs and replaced with sugar was probably produced at a loss; certainly at no profit. Of course, the retail price of honey is higher than sugar, and if you sell your honey retail you get more than the sugar costs, but you collect the difference only at the expense of gruelling salesmanship. You earn every cent of it. And while it is a legitimate and reliable way to earn money, the difference in price should be credited to the work and not to the value of the honey.

Your honey is worth only what it would cost to buy more of the same kind. With honey not more than a cent above the price of sugar, there is no chance to make a profit in taking honey that the bees might use themselves. Why should a man work for nothing and board himself, and demoralize the honey market to boot?

I know it is a great temptation to remove as much honey from the hive as possible. After all, you are in the business of producing honey, and naturally you feel it is your business to produce as much as you can. That is where the mistake is made, because we have arrived at the state of affairs where it is not the producer's business to produce as much as he can. It is his business to produce only as

much as he can sell at a reasonable profit.

No need to mention wheat, nor the efforts to have cotton planters plow up every third row of cotton. We might burn every third hive of bees and benefit the industry. But we don't have to do that; we can achieve the same results at no cost—and probably at a saving—by simply making a rule to feed no sugar.

And that would be getting back to orthodox principles laid down by the old bee masters, who made it a rule that giving combs of sealed honey was the best possible way to feed bees, all things considered, whether for winter or for spring.

The Use of Honey for Athletes

By Malitta D. Fischer Jensen
American Honey Institute

THE Institute has in its possession a picture which at first glance might be mistaken for a bathing beauty contest, for the girls make a fine looking group. But these girls represent the swimming team of Penn Hall. One of them in whom we are particularly interested is GeorgAnne Lewis, daughter of Mr. and Mrs. G. C. Lewis, Watertown, Wisconsin.

Mr. Frank S. Magill, headmaster, Penn Hall, wrote me as follows on October 26, 1931:

"Honey is used on all the tables in the dining room at least once each week, but served three or four times each week on the training tables. This applies not alone to the swimming team, but to members of the varsity hockey team at this period, and later to the basketball team."

This past fall we have been hearing more about the use of honey in the diet of athletes, and I thought our beekeepers might be interested in a few of the notes or records found in the bibliography on the use of honey for athletes. Perhaps you have read these before, but they are given or repeated so that you may have a collection of references to use in interesting your local athletic trainers in using honey for their athletes. No matter whether it is the high school football team, the Y. M. C. A. basketball team, the Athletic Club swimming team, the college hockey team, or track team next spring, start after the trainers and get them interested in recommending honey for their boys and girls. Give them the references and let them write to American Honey Institute for file copies of food value sheets, "Encourage the Use of Natural Sweeteners" and "Honey Helpings." Every member of their team may have a set of this material by sending in an individual written request.

The most recent mention on the use of honey for athletes was in-

cluded in the U. S. D. A. press release of May 24, 1931. This release was entitled "Honey High in Food Value," and stated:

"Honey is one of the best of the high energy-producing foods. Because it is composed almost entirely of simple sugars, it can be assimilated with ease. Most sugars require action by the gastric and intestinal secretions to break them down into simple sugars similar to those occurring naturally in honey.

Instead of selling the honey and buying the sugar, let's use the honey for the bees and the money for the beekeepers.

"Because it is easily assimilated, honey is of importance where normal digestive activities have been impaired by disease or old age. Honey can be utilized by the body without placing much of a burden on an enfeebled digestive tract and is also recognized as a valuable food for babies and young children.

"Honey is especially good in the diet of athletes. The rapid absorption of the simple sugars of honey replaces the sugars in the blood and muscles that have been burned by strenuous exercise."

I find homemakers much interested in this statement by the U. S. D. A. and I hope more beekeepers will take advantage of the added prestige such a release gives to their selling talks if they use it.

Ethel Hertle, who won the third Wrigley marathon held at Toronto a few years ago, wrote the Ontario Honey Producers' Association as follows:

"For the past two years I have been experimenting with various products that were supposed to be energy builders—starting with beef broth and sugar in both the Catalina and Lake George swims. At Toronto last year I tried maple sugar and found that none of these products gave me the desired results.

"After consulting a number of athletes (runners, boxers, oarsmen and others), I discovered that they were

using honey. After experimenting with several kinds of honey, I decided to use your honey, which I found to be more easy to digest and which did not give the gaseous troubles that other products did. This is one of the most important things to stress, as there is no more distressing thing in the world to the athlete than stomach pains during a meet, no matter what sport."

The Toronto Young Men's Christian Association, through their director of athletics, W. L. Finlay, also wrote the Ontario Honey Producers' Association about the use of honey. Mr. Finlay's letter in part was:

"For almost three years the members of Central Y. M. C. A. Walkers' Club, the premier club of its kind in Canada, have been using your honey as a staple article of diet.

"Following extensive medical research work on diet and athletes' endurance in which was involved estimations of blood sugar before and after competitive walks, these members aforementioned were advised to incorporate in their bill of fare a large quantity of natural sugars, and the article deemed most suitable by medical opinion was honey.

"This type of athletic activity in which these men are engaged demands great stamina and endurance, and the food problem with us is one that demands close attention.

"Honey has the following advantages over other sugars:

"1. It is non-irritating to the delicate membranes of the digestive apparatus.

"2. It is assimilated rapidly and easily.

"3. It quickly furnishes the demand for energy.

"4. It enables the athlete to recuperate rapidly from severe exertion and the men using it show less evidence of fatigue, according to standardized medical tests.

"5. As far as our research work has demonstrated, the use of honey spares the kidneys, lessening tissue destruction.

"6. It has a natural and gentle laxative effect.

"7. It is easily obtained and it is inexpensive."

Dr. G. N. W. Thomas, communicating with "The Lancet," declares that honey is a great reconstructive in health and sickness, and particularly is it a stimulus to exhausted muscles.

"When muscular energy is required," he says, "and particularly after emotional stimulation of the sympathetic nervous system, there is found to be an increase of sugar in the blood. Muscles in action may consume three and one-half times as much sugar as muscles at rest. Glycogen, a storage product in muscles, as well as in the liver, belongs to the polysaccharids, and the sugar in the

blood becomes available to renew the energy lost through muscular effort."

And perhaps we have forgotten that even with athletes it is as true as it is with children that **when he takes pleasure in his meals he eats well and his food fulfills its purpose.** The appetite appeal of honey is just as attractive to athletes as it is to other folks. The added flavor provided in food dishes where honey is **correctly** used is bound to have a beneficial psychological effect as well as valuable physical effect on the athlete.

Now is the time to stimulate your local athletic teams to use honey in their diet.

Milk and Honey for the Unemployed

By Robert Mead
Vermont

THIRD AVENUE, just north of Thirty-fourth Street in New York City, is hardly a place one would expect to find flowing with milk and honey. There is a restaurant there, however, which is a haven of refuge for the near down and outers and the unemployed, who are its steady customers. It is not a bread line, it is not entirely charity; it is a place where the man with a few cents can get a stomach-filling and soul-satisfying meal.

Think of picking up a restaurant menu and finding that each item costs only one cent. Well, that restaurant on Third Avenue runs on just that plan. The variety is varied enough to suit anyone. There are soups, cereals, raisin coffee, and last, but by no means least, milk and honey tea. All for one cent a serving, so that for a matter of five cents one can eat to his heart's content. About the most popular items on the list are cooked cornmeal with brown sugar, and for the beverage the milk and honey tea.

Of course, a place of this nature must have some outside backing, and as we understand it this is looked after by the Bernarr Macfadden Foundation. Most everyone has heard of Bernarr Macfadden, that much-cussed and discussed gentleman who heads the syndicate that controls the destinies of a large group of our popular publications.

Certainly with so many out of work such a place is something to be thankful for. For many it is a God-send that tides them over from one short job until the next, and it furthermore gives a man more confidence than to stand in a breadline. It gives them a break and it is giving honey a break, because there are many who will remember that milk and honey tea when the time comes that things are normal again so that they can buy the things that most appeal to them. Truly, the world

does move, even in times of depression.

Alabama Queen Breeders Support American Honey Institute

That the American Honey Institute is making its influence felt has recently been shown by support given to it by the queen breeders of Alabama.

Through the leadership of Thomas Atchison, state apiary inspector, and W. C. Short, of the W. D. Achord Company, nearly \$100.00 was subscribed for the work of the Institute.

Messrs. Atchison and Short were delegates to the meeting at Columbus, Ohio, in January and took home to the beekeepers and queen breeders of Alabama information as to what the American Honey Institute was doing. In response, the following queen breeders subscribed:

W. D. Achord, Fitzpatrick	-----	\$25.00
Hayneville Apiary Co., Hayneville	-----	10.00
Jasper Knight, Hayneville	-----	10.00
W. J. Forehand, Ft. Deposit	-----	10.00
Bolling Bee Co., Bolling	-----	10.00
N. B. Smith & Co., Calhoun	-----	5.00
Citronelle Bee Co., Citronelle	-----	10.00
David Running, Sumterville	-----	10.00
J. M. Cutts & Sons, Montgomery	-----	5.00
Crenshaw County Apiaries, Rutledge	-----	3.00

Mr. Atchison assures the Institute that other breeders and beekeepers will soon join in the support of the Institute. It is cooperation of this kind that will continue the good work of the Institute and make it a success.

I Prefer Excluders

By R. B. Manley
England

With regard to the use of excluders in extracted honey production, I know of no greater nuisance than to find the extracting combs with patches of brood when the honey is removed at the end of the season. This is almost always the case unless the crop is taken off late, after the end of the flow. It is not unusual, when the extracting combs have become brown from brood, for a queen to continue to occupy them to the last moment.

No extracting combs can be kept free from drone-comb, for we all know how bees will build drone-comb in odd corners and sometimes between combs. The queen will nearly always occupy this comb and is therefore liable to extend her activities into the worker-comb, especially when breeding may have been carried on there before. So I much prefer to use excluders.



The fossil bee of G. Statz, *Synapis dormitans*, Cockereli. Five and one-half times enlarged.

A Fossil Bee from Long Ago

New evidence of the existence of bees over a million years ago was presented by Mr. Georg Statz, of Cologne, Germany, who described and illustrated in the "Praktischer Wegweiser fuer Bienenzuechter" of January, 1932, a fossil bee, which he found in 1930, in an exposed lignite layer at Rott, Germany. According to Mr. Statz, these deposits originated in the Oligocene or Miocene periods of the Tertiary Age. At that time this landscape was covered by lakes, and this bee possibly fell in the water, drowned and sank to the muddy clay bottom, where it became covered and preserved by lake precipitations.

The color of this bee is from yellow to dark brown, like the present races of bees in southern Europe, Asia Minor, and Africa.

In size and in many other ways it resembles our honeybee, except for a deformed thorax, which is possibly due to crushing. The antennae, and legs with claws, very closely resemble those of the honeybee of today. On the hind legs pollen brushes are developed; this is a distinct characteristic of social bees where a worker cast exists. The antennae cleaners on the front legs are also present. The proboscis is visible and is held in a manner characteristic of dead bees. The abdomen shows six segments exactly like those of the honeybee of today. The wings are only partly preserved, and it can be detected on the small visible portion of the forewing that the basal nerve pursues a different course than does that of the honeybee.

This difference caused Dr. Cockerell, of Boulder, Colorado, to establish a new genus, and he named this fossil bee *Synapis dormitans*. In spite of this difference, we can see that we are dealing with a bee closely related to our *Apis mellifica*.

Erwin C. Alfonsus,
Madison, Wisconsin.

"Nectar and Pollen Plants of California"

This is the title of Bulletin 517, published by the University of California, and is written by George H. Vansell; a really thorough and complete publication on the subject, which should be of great value to all California beekeepers and useful in selecting locations.

One paragraph in the introduction interests us particularly: "It is usual for the nectar plants in any locality to change through a succession of years. New crops, as, for example, oranges or alfalfa, may supplant the old ones; or new weeds, such as the star thistle, may come in."

It is this very fact which makes modern beekeeping, with its larger apiaries and more extensive equipment, different from beekeeping in the earlier days, when the bees were all at home and the equipment simple and easy to handle.

The modern beekeeper finds his location changing rapidly, so he must move from place to place. He no longer looks with favor on putting up expensive honey houses, but keeps his honey house centrally located in a region big enough to allow changes and relocation over a series of years.

The bulletin discusses nectar secretion and lists the nectar- and pollen-yielding plants of the state, giving distribution maps for the important sources, making it of great value indeed to the beekeeper.

At the end of the bulletin there is a table giving the characteristics and value of the different California plants as sources of honey, listing the color of honey, time of blossom and the value of the source whether important or not.

From the standpoint of the practical beekeeper this bulletin is immediately usable. Most of the honey plants are shown in picture with such clarity that they are easily distinguishable, and the maps to which we have referred are published along with the discussion on the individual plants.

"Metso" to Clean Jars

Through the courtesy of the Philadelphia Quartz Company, at Philadelphia, we are in receipt of two samples of Metso, a new cleanser, which does a splendid job of washing bottles for honey. It is apparently a softener and a cleanser. With the aid of a little soap and Metso, the jars come out brilliantly clear. Then hot water and a drying rack are all that is necessary to finish the job.

Metso is generally used for cleaning glassware, milk bottles, leverage bottles, and restaurant glassware. It washes glass to a glistening cleanliness and completely removes fats, oils and dirt. It does not affect the glass. By increasing the amount used, the most stubborn dirt can be removed.

Well—How Well Will Bees Do in a Well?



Combs built by a stray swarm in a well pit near the farm of Peter Peterson at Kimballtown, Iowa. This is certainly an unusual place for bees

to settle. Any bees which chanced to fall from the cluster would be drowned in the water below.



Death of Sir William Watson Cheyne

The British Bee Journal announces the death, on April 19, of Watson Cheyne, who with F. R. Cheshire, in August, 1885, studied the causes of foulbrood and ascribed what is now called American foulbrood to a bacillus which they called "Bacillus alvei." Later, in 1892, Dr. G. F. White, of the Department of Agriculture of the U. S., gave evidence, in bulletins 94 and 157, of the fact that the real cause of American foulbrood is "Bacillus larvæ," which he discovered, and that Bacillus alvei is only a secondary bacillus found in European foulbrood. We would not mention this in publishing this obituary if the British Bee Journal had not stated, while announcing the death of this remarkable scientist, that "the Americans endeavored to prove, without success, that the findings of Cheshire and Cheyne were incorrect."

In fact, without wishing to diminish the renown of Sir Watson Cheyne, we cannot refrain from saying that every evidence since those days has proved that Dr. G. F. White was correct in his statements concerning the nature of foulbrood.

Sir Watson Cheyne was in his eightieth year when he died.

Swarming and Non-Swarming Bees

Some people seem to believe that, as swarming is the natural condition through which bees increase, it is a mistake to try to prevent the bees from swarming. But in poultry the non-setting hens are considered a progress, and some races have actually been produced that set so little that they may be called "non-setting". It is just as excusable and as profitable to secure a non-swarming race of bees. Of course this end will never be entirely achieved. But the apiarist who has colonies that produce large crops of honey and swarm seldom is a successful man. Now that the swarming season is about over, it is the proper time to take note of the colonies that swarmed scantily or not at all, so as to breed from their queens next season.

Jarring the Hives

The practical apiarist knows that the hives must not be jarred, if we wish our bees to be gentle. But the Italian magazine, *L'Apicoltura Italiana*, calls attention to the fact that if we smoke our bees first we may then jar their hives without danger, but it quotes Heddon in stating that if we jar the hives before smoking them there will be but little chance of pacifying the bees afterwards. An angry bee, on the wing, is not likely to become gentle through any amount of smoking.

Ill-Jointed Hives

The apiarist who has kept bees in the same hives for twenty years or more often has disjointed hives which are likely to allow robber bees to enter. As it is difficult, if not impossible, to repair those hives until the bees have been transferred to newer hives, it may not be out of place to indicate a method of temporarily repairing the trouble. It is by the use of mud, made from yellow clay and carrying a small quantity of it along in the apiary. Any openings that are undesirable, cracks or disjointed spots are easily repaired temporarily by the use of this material. This advice will appear rather slipshod to the careful owner of a few stocks of bees. But the man who has numerous colonies, in hives of all ages, soon realizes that this is an exceedingly practical method of repairing old hives temporarily.

In Europe, in the old days of box or straw hives, the custom of repairing the crevices with mud was universal. Hamet, the first editor of *L'Apiculteur*, the second oldest bee magazine in the world, in his "Cours Pratique d'Apiculture," advises the use of a substance made of clay, ashes and cow dung, which he called "pourget," to close up the joints between different stories in the hives. The cow dung was evidently intended to give more adhesion to the plaster thus made. This substance is still used in some European apiaries.

Truck or Rail

The truck is coming into common use among beekeepers to haul their products to the distant markets. Early in May two bee men stopped to pay us a call as they went by on their way south after a load of 400 packages of live bees. They estimated that on that size of shipment they would be able to save one-half the express rate by going after the bees themselves.

The express company has shown evidence of wisdom in reducing the express rate on package bees. The one who buys packages by hundreds is in position to secure them by truck rather than pay an excessive rate. In our opinion the express revenue from package bees will be larger at the lower rate than it would have been at the former one because of increased volume.

The recent raise in freight rates is giving more business to the trucks. Had the railroads followed the same light and reduced freight rates rather than raising them, it would have brought back some of the business which the trucks were getting.

Had the railroads never raised the passenger rate above the former two cent per mile, it is probable that far more people would be traveling by train instead of by auto today. The quickest way to kill any business is to charge a price above what the traffic will bear.

We must remember, however, that the railroads are in a very difficult position. They must maintain their own right of way and pay taxes on its full value, while the trucks use public highways almost without cost. The Government also controls both rates and wages for the railroads. With more freedom of action they might be in better position to compete.

Soaking Everybody

A prominent speaker in a recent radio address called attention to the real cause of much of our present depression. The illustration he used was that of a railroad wishing to borrow money to electrify its line. The bonds would pay taxes to the Government, the money would be used to buy materials and to hire labor to build the line. The materials purchased would give employment to labor in the factories making the equipment, and many persons would benefit from the new work thus created.

Because of the present policy to swat the rich, those having the money to loan were afraid to loan to the railroad. Instead, they loaned to the Government on tax-free securities. As a result the railroad could not make the expected extensions, the labor in the factory remains unemployed, the labor which would have built the line is unemployed, and instead the taxpayer must raise more money to pay the interest on the Government bonds which are tax free.

Until we realize that Government interference hinders instead of helps, we can hardly hope for much improvement. It is impossible to soak the rich without soaking everybody else. Our interests are closely related in this country. The rich man can only profit from his holdings by keeping his money at work. There are two ways to do this—either engage in business, employ labor and

make goods, or loan it to the Government on tax-free bonds. In one case he helps the rest of us by giving employment, in the other he makes it harder for us because we must pay for the use of the money which he has loaned to the Government.

When Congress comes to realize that the public is very much in earnest about reducing taxation and curtailing unnecessary Government activities, we will be on the road to economic recovery.

Too Much Poison

We are going entirely too far in the distribution of poison in the attempt to control pests. Poison bran mash is spread in the fields to kill cutworms and grasshoppers; fruit trees and cotton fields are sprayed with poison to control insects, and the Government is spending millions of dollars in spreading poison to kill coyotes and rodents in the West.

There are times when poison must be used, but it should be done with great care. Enormous numbers of useful birds, domestic fowls and other creatures have been killed in this manner. The losses of beekeepers from the careless use of poison in spraying fruit trees are only too well known.

We feel that it is time to curtail this wholesale spreading of poison in the hope of destroying noxious animals or insects. The losses of the useful ones are entirely too common to justify the unrestricted use of poison even by Government agencies. The bees have been almost completely destroyed in large areas and the beekeepers compelled to move to new pastures. Similar losses of useful wild birds and domestic animals make it necessary to be more careful. Even horses and cattle have been destroyed in some cases.

Get to Work

There is no way out of the present difficulty in which the world finds itself but by hard work and careful saving. Politicians offer promise of Government help in order to get the votes to keep them in office. Prosperity remains with them as long as they get the salaries which the taxpayers must provide. Every effort to restore business by law has failed and most efforts of that kind have made matters worse.

We must realize that the world has squandered billions of wealth produced by past generations in a senseless war and that we must pay the cost by creating new wealth. Our country is deeply in debt to pay for war, for improved roads, for new schools and numerous other improvements. These must be paid for, and in addition we must pay interest on the debt until it is retired. Usually the interest amounts to more than the first cost before a public debt is discharged.

The days of easy money are gone. We are back to old-time conditions and might as well face the fact. There is no good crying over spilt milk. We may look forward to hard work, high taxes, self-denial and small profits. Those who face the facts and get busy will soon be getting ahead. Beekeeping offers as much (or more) to the forward looking man as any other out-of-door occupation. Now is the time to buy distress outfits cheap.

Look Out for the Moths

There is very little danger of waxmoths in combs, in the spring, in our northern and middle states. This is due to the fact that moths or moth larvæ cannot live outside of a hive of live bees or a warm building during the winter months. But when spring comes the few moths or larvæ which have managed to live soon begin to develop. The moths lay eggs, several hundred in number, in the cracks of the hive. The development of the moths, from the egg to the perfect winged insect, takes more or less time, according to the temperature.

Professor F. B. Paddock, while he was state entomologist of Texas, in 1918, made a number of experiments upon the development of the waxmoths. He found that the eggs may hatch in from five to twenty-seven days. The larva remains in the worm stage from thirty to one hundred and forty days. The building of the cocoon requires from one to six days and the winged insect lives

from six to thirty days, a total of from forty-eight to two hundred and fifty-eight days. This in the climate of Texas, and as the development depends upon the coolness or the warmth of the temperature, it is quite possible that in our northern or middle states the development may be still slower.

For these reasons we need not be afraid of the spreading of the moths so much in spring as in summer and fall. The succeeding generations come also at greater intervals in the North than in the South. We need not fear the second generation till July, but the third, which comes usually in September in the middle states, is exceedingly plentiful. So, if we are in fear of moths, we may begin to look for them and to provide against them in July. If we have been careful to keep all our colonies strong and to leave no combs exposed in unoccupied hives, the danger will be slight. But let us keep our eyes open from this on till winter.

The Home Market

In these days of low prices the man who must ship to a distant market is at a great disadvantage. Freights and commissions take so much of the return that there is little left for the producer. The beekeeper who has developed a home market for his honey is the one who seems most prosperous now. There are many who are able to exchange their honey for other things which they need when they could not sell to as good advantage for cash.

The man with a home market saves such items of expense as commission, transportation, extra packing, etc., and these items make the difference between profit and loss in times like these. There is a tendency to return to the simplicity of other days, when the farmer lived from the products of his farm and exchanged the surplus for such things as he could not provide at home. There are few places where the sale of honey could not be greatly increased by real effort on the part of the beekeeper. To some extent the present conditions may prove good for the industry, since so many are working the home market in a way that they have never done before and thus finding new outlets for honey.

On the whole, the beekeepers with whom we come in contact seem more optimistic than other classes.

Fruit Crop Short

All reports agree that there is a very short crop of fruit in the Middle West. Illinois estimates less than 5 per cent of the peaches produced last year. Apples are far short of the normal crop. In seasons when fruit is plentiful honey sales are slow, but in years when fruit is scarce honey moves much more readily.

The short crop of fruit may be expected to result in better demand for honey. One reason why honey sells better in the plains region is because less fruit is produced there. When the housewife has an abundant supply of material with which to make jelly and jam she finds less interest in honey and syrup. This is the year when the jam closet bids fair to be poorly supplied, and hence we may expect her to be ready to buy our honey.

Remedies Against Moths

It is hardly proper to give remedies against moths in an editorial. But so many of our readers have inquired regarding this question that our experienced friends will pardon us for giving the matter mention here.

Sulphur fumes, produced by burning brimstone in a dish under a pile of supers filled with combs, is the most common method of killing the moths. All the moths and the flies in the honey house may be killed if a sufficient amount of sulphur fumes is produced.

Bisulphide of carbon or carbon tetrachloride may be used by pouring it, in proper quantity, on a rag and placing this at the top of a pile of supers. We say "at the top," for the fumes are heavy and float downwards.

One may also use the "waxmoth fumigator," "paradichlorobenzene," which is advertised in the Dadant-Lewis catalog. New combs are not in so great danger of the moths as old combs, as the moths need other material, in addition to wax, to build their cocoons. They often eat into the wall of the hive in which they spin their webs in order to have sufficient hard material for their cocoons. Pure beeswax is not sufficient for them.



THERE is no mistake in that heading. It does not refer to wartime inflation. Certain honey is selling readily in Philadelphia at 75 cents a pound, in glass jars, in the store of Arthur W. Eichhorn, on Chestnut Hill. Mr. Eichhorn has sold ten cases since the beginning of winter and is ordering more. I called on Mr. Eichhorn to sell him fancy, cellophane-wrapped, comb honey at 35 cents. He said: "No use of my trying to sell comb honey. Since I put in this new honey two years ago my customers will take nothing else. I have ordinary extracted honey on the shelves and it stays there. But the new honey doesn't stay—it sells." And Mr. Eichhorn produced a jar of the honey.

"We call it 'Sugared Honey,' and, as you see, it is imported from New Zealand. Everyone who tries it likes it, and my sales are increasing. It has a wonderful flavor and, because it is solid in form, it doesn't drip when served."

The Eichhorn store is high-class, with a wealthy clientele, and the only one in the neighborhood selling "Sugared Honey." He obtained it from a New York importing house.

Sampling this "Sugared Honey" from New Zealand, it proved to be a rather finely granulated, light amber clover honey—at least the flavor of clover predominated. The importers quote the honey at \$5.00 a dozen jars in cases of two dozen f. o. b. New York. It is "New Zealand Imperial Bee Honey—Guaranteed Absolutely Pure and Free from Preservatives. Packed by the New Zealand Cooperative Honey Producers' Association, Ltd."

So New Zealand honey producers have done a good job. With our finest liquid white clover honey selling at 20 to 28 cents retail, they can sell New Zealand honey for nearly four times as much and find a market half way around the world, after

Extracted Honey at 75 Cents a Pound

By S. F. Haxton
Pennsylvania



shipping it to England and then across the Atlantic again to America.

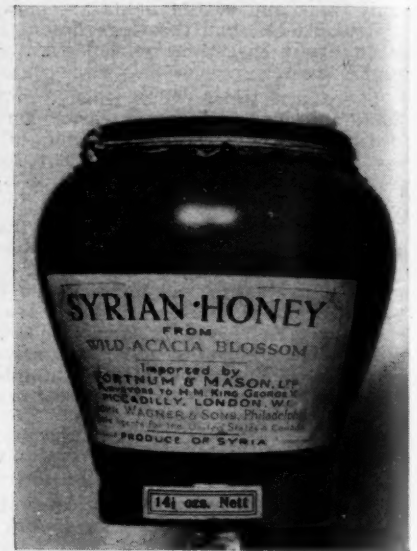
They issue an 18-page booklet, size 5½ x 8½ inches, with cover in two colors, giving a vivid picture of a bee with the head of a man, the same figure being used on the label of the honey jar. The pages are crammed full of sales talk on honey, and on the "Imperial Bee Brand" in particular. Some of the copy must have been written by a man with a poetic soul—"Nectar from sun-drenched meadows of New Zealand, ripened in the hive to become creamy golden honey..." Many of the statements are interesting to a lover of honey. It certainly presents a good case for granulated honey and boosts Imperial Bee Honey as a finely "set" (granulated) honey. "It is fully matured, of a rich, golden amber—every morsel delicious and pure nourishment. Nature's food, bottled sunshine and energy, produced by the oldest and wisest chemists in the world—the wonderful honeybees."

The booklet fully describes honey as a health food, something which we have not yet done real well in this country. Also, New Zealand honey holds the certificate of the Institute of Hygiene, a British institute for purity and quality in food products. It displays the label of the Institute, which ought to build confidence in the product.

There are suggestions for the use of honey for children, for the diet of the baby, for colds, sore throat, in addition to food uses, including honied grapefruit, honey tea, and many kinds of cakes and salads.

Apparently, too, New Zealand beekeepers have employed newspaper

and magazine advertising for "Imperial Bee" honey in England, for the booklet contains reproductions of advertisements featuring this honey, telling the public that if they cannot get it locally they should write to the high commissioner for New Zealand,



in London, or to their London agents for stores regularly stocking it.

The Dominion of New Zealand has an area of only 104,751 square miles and a population of about a million and a quarter. It is about the size of the state of Colorado and with about as many people as Detroit, Michigan. Yet the beekeepers, with the aid of their government, have been able to give New Zealand honey almost world-wide distribution.

As they say themselves: "New Zealand honey has won a reputation in Denmark, Norway, and Sweden. The Danish Government sends regular orders to Greenland, Iceland and the Faroe Islands order supplies. India and the East receive shipments direct from London. Germany is a large consumer and it was advertised there as being the best honey in the world."

This statement met with the censure of the local beekeepers of Germany and was taken to law. It was proved that "Imperial Bee" honey commanded the highest price upon the International Produce Market in London and judgment was given in its favor. The Danish Government prize it so much that in the case of New Zealand "Imperial Bee" honey they have remitted the regulation requiring imported honey to be marked as "foreign."

It is obvious that only its foreign origin permits New Zealand honey

to be sold in this country at 75 cents a pound. But let the reader gasp again when he reads the following extract from the price list for December of Mitchell, Fletcher & Co., fancy grocers of Philadelphia: "Delicious honey: attractive jars filled with extra fancy imported honey; 14 1/2-ounce jar, \$1.50; \$17.00 per dozen. Orange Blossom, light blue jars; Wild Thyme, dark blue jars; Wild Acacia, Chinese red jars; Cactus Flower, rose pink jars; Hymettus, yellow jars; Hybla, jade green jars; Peach Blossom, Sahara pink jars; Fruit Blossom, tangerine jars; Spring Flower, heliotrope jars."

(Now what do you think of that? Jars to match the honey in color! That's going the limit.—Editor.)

But if a dollar and a half for fourteen ounces is more than the consumer wants to pay, he may choose from the following varieties of California honey at only 50 cents for 12-ounce colorvases; \$5.75 a dozen; Orange Blossom in blue, coral, and orange colorvases; Sage Blossom in jade colorvase; Mesquite Blossom in canary colorvase; Basswood Blossom in grenadine colorvase; White Clover in pearl colorvase; Buckwheat Blossom in black and silver colorvase.

The moral of this story seems to be that honey is worth what you can get for it.

Processing Honey to Produce Granulation

"FERMENTATION and Crystallization of Honey" is the title of a 76-page bulletin (No. 528) of the Cornell University Experiment Station, and represents the result of the work of Dr. E. J. Dyce.

Dr. Dyce's object was to find, if possible, the reason for the losses of quantities of honey by fermentation and to discover some way in which such losses might be avoided.

He found that much honey contained sugar-tolerant yeasts and that these yeasts caused the fermentation; that such fermentation occurred often in the granulated honey and, roughly speaking, increased with the age of the honey. The fact that honey is now being held for longer intervals between production and final consumption necessarily has increased the amount of fermentation.

Apparently honey stored by the bees in wet combs which had not been put back on the hives the year before to be cleared and dried of honey was much more apt to ferment than that which had; with the precaution always, of course, to extract only rich, well ripened honey.

Dr. Dyce's results show that the favorable way to reduce such fermentation to the minimum was to heat the honey to 160 degrees to kill the yeasts, after which it was to be cooled as rapidly as possible to about

75 degrees. Then there was to be added to the honey, as "seed," previously treated granulated honey from which all yeasts had been destroyed and which had a fine granulation. The addition of this "seed" would cause the treated honey to granulate equally fine and to keep without fear of further fermentation. Care must be taken, however, to maintain a temperature of about 57 degrees after the addition of the "seed" until granulation has completed. This process was originated by Dr. Dyce and has been patented by the University at Cornell to prevent infringements.

In itself the work of Dr. Dyce represents a careful and conscientious study of his subject. Just how far reaching the effect of it will be on the storing and handling of honey depends upon how readily the honey producers and handlers accept this method rather than follow the methods they have been using. In other words, whether it will cause a general movement for the processing of all honey by Dr. Dyce's plan.

Years ago the Dadants were firm exponents of the sale of honey in granulated form only, and they continued to sell it so, long after others had gone to the liquid form. The Canadians still sell most honey granulated. If their percentages of fermentation are sufficient to warrant it, and if the advantages of smooth, fine granulated honey are sufficiently large, then this process should be especially valuable to the beekeepers of Dr. Dyce's native soil.

We wonder, however, if even Dr. Dyce's process is going to change the United States from a liquid honey consumer to the granulated honey as more desirable. We doubt it.

It is unfortunate that Dr. Dyce does not have the opportunity to carry his work still farther by the testing of honey from far separated sources and sections. Most of his samples were from Ontario. We wonder if there are not some other factors, such as climatic conditions, altitude, etc., which might have an influence on susceptibility to fermentation? We have ourselves observed fine grained honeys of our own production which apparently kept indefinitely. And more often have we seen it in some of the western intermountain honey—fine grained, smooth honey that appeared almost as lard.

We have not had opportunity to see any of Dr. Dyce's treated honey, but we are inclined to think that many honeys are nearly such by nature, and that there is still one or more factors to be discovered by additional study and experimentation.

(We have often kept honey for several seasons in barrels, granulated, without any fermentation. The main secret is to harvest the honey

only when well ripened by the bees. There are germs of fermentation in all honeys, and these can only be destroyed by heating. But we dislike to heat honey if we can possibly avoid doing so. The process given by Dr. Dyce as patented is not patentable, as it was used long ago by ourselves.—Editor.)

A Bumblebee Becomes a Humble Bee

By Bruce L. Morehouse
Minnesota

Almost everyone likes a contest. Some of us like to see a real combat—one of the "win or die" kind—and one day it was my good fortune to witness what followed when a large bumblebee tried to enter a strong colony of Italian honeybees. He settled down among the honeybees at the entrance and started to crawl into the hive, when several honeybees accosted the intruder. Like police officers, they tried to divert his wanderings to another direction. But Mr. Bumblebee was intent on going into that hive.

Then the struggle began! Over and over the bumblebee rolled, kicking off honeybees as a giant would his Lilliputian tormenters. A dozen or more honeybees joined in the battle, but they were not enough to subdue the vigorous kicks of the bumblebee. However, after about five minutes of this kind of fighting, the bumblebee began to slow up and it was plain that the organized combatants had the advantage. A sense of fairness impelled the observer to boost the fighters away from the hive entrance with the hive tool, to a place where the honeybees were less numerous. Soon the adventurer had freed himself and gladly flew away a short distance to rest and think over the advisability of getting sweets that way. Then I was certain that this bumblebee was a humble bee.

Beeswax Cement

The following formula produces a mixture that will adhere tenaciously to glass, wood or metals. It has a low melting point and is somewhat flexible even at room temperatures. Its greatest use is in the laboratory in connection with the setting up of apparatus made of glass, and is also used in fastening gold or platinum plates to forms for polishing or grinding. It was given to me by Dr. Max Kleiber, of this institution:

500 parts of beeswax.

200 parts of resin.

200 parts of Venetian turpentine.

Melt the resin, add the melted beeswax and then the Venetian turpentine.

J. E. Eckert,
University of California,
Davis.

Some Causes of Honey Fermentation

By Professor F. W. Fabian
Department of Bacteriology
Michigan State College

IN these days of small marginal profits, it behooves everyone to scrutinize any leaks in their industry that might mean the difference between profit and loss. It has always seemed to me a great waste to have honey spoil after the bees have worked diligently to acquire it and the beekeeper has spent his time and money to conserve the product of their labor. Nevertheless, every year a certain per cent of honey spoils.

It has only been recently that the problem of fermented honey has assumed its present importance, due mainly to the fact that honey has been produced in large amounts commercially and it has been necessary to store it for varying periods to care for market conditions.

Whenever honey is stored for any length of time, a certain amount of it will spoil, but we have not known how much would spoil during a one- or two-year storage until recently, when some information has been obtained.

According to Phillips (1), unpublished work by Pugh on Ontario honey indicates that honeys kept for a year show an average loss of 5 per cent from fermentation, while those kept two years show a 25 per cent loss.

What Causes Honey Fermentation?

The Michigan Agricultural Experiment Station has long been interested in honey fermentation. The first scientific work done on fermented honey in this country was done here in 1920 (2). The work begun was carried over a period of years and published in Technical Bulletin 92 of this station (3). We found that what was causing honey to ferment was sugar-tolerant yeasts. This has since been confirmed by others (4) (5). Some years previous to this, however, European workers (6) (7) had shown that honey fermentation in the countries

where it was observed was due to sugar-tolerant yeasts, so that now it is generally accepted that honey fermentation is caused by these yeasts.

Where Do These Yeasts Come From?

It has been found that they come mainly from three sources: The nectar, the bees, and the soil. One could reduce them all to one source, the soil. They no doubt get into the nectar from the soil and onto the bees from the nectar and the soil.

Yeasts were isolated from the nectar of flowers as early as 1884; since that time a great many workers have studied the yeast content of nectar.

One of the latest and most interesting pieces of work on this subject is that of Lochhead and Farrell (8). They examined soil from different locations over a twelve-month period for sugar-tolerant yeasts capable of fermenting honey. They concluded that ordinary field soil was not a primary source of sugar-tolerant yeasts, since they found none in ordinary field soil except in one clover field.

In the soil from the older part of the apiary they were able to isolate sugar-tolerant yeasts in most cases, while the soil from the newer part of an apiary contained fewer sugar-tolerant yeasts. They believe that the soil becomes infected from the beehives through the dropping of honey and less readily from wax, nectar and dead bees. The yeasts are not killed during the winter by the freezing of the soil. Examination of honey tanks, containers and the air of the honey-extracting house showed the presence of these yeasts. These and other results show that honey-fermenting yeasts are very prevalent about an apiary, and care should therefore be taken at all times to guard against unnecessary contamination of honey with them.

Does All Honey Contain Yeast?

Research work in this country and Europe shows that practically all honey contains sugar-tolerant yeasts. Nussbaumer (6), in analyzing Swiss honeys, found evidence of yeasts in thirty-four out of thirty-eight samples, and in eighteen out of twenty-three of the samples of foreign honey. Marvin (5) believes yeasts to be present in most honeys. Lochhead and McMaster (9) analyzed 191 samples of normal Canadian honey from a great many sources and found

them all to contain sugar-tolerant yeasts.

From the above, it is safe to say that a majority of honey contains yeasts. The percentage of samples containing yeasts is so high that we should assume that all samples contain sugar-tolerant yeasts in order to be safe.

Number of Yeasts in Honey

The number of yeasts per gram of honey vary quite widely (9)—from one in ten grams to 100,000 or more per gram, with a median count of 1,000 per gram. The greater the number of yeasts found per gram, the greater the tendency of the honey to ferment. As the moisture content increased, there was a tendency for the number of yeasts to increase, yet they did not consider the number of yeasts as simply a function of the moisture content. The floral origin of honey did not seem to be of importance from the standpoint of the number of yeasts. Buckwheat honey showed a higher moisture content than other honeys and had a greater tendency to ferment.

One very interesting observation was the fact that a progressively increasing yeast count was found in samples of honey from the various Canadian provinces from West to East which corresponded with their tendency to ferment. If the same conditions hold true in the United States, then, since we are located approximately half-way between the two coasts here in Michigan, we might expect to find our honey only moderately contaminated with yeasts.

Methods of Preventing Fermentation

There are at least three ways: First, by heating the honey. It has been shown that fermentation can be prevented by heating honey to 145 degrees F. for thirty minutes or heating it to 160 degrees F., by holding it at 100 degrees F. for several months, or at 122 degrees F. for twenty-four hours (10). Nussbaumer (6) recommended a temperature of 170 degrees F. for thirty minutes.

There are certain advantages and disadvantages in heating honey. When honey is heated it has a tendency to darken. The higher the temperature and the longer it is heated, the darker it becomes. Also it destroys the enzymes present. This is especially important in honey to be exported, since certain countries, notably Germany, consider all honey which does

(10) Marvin, G. E., W. H. Peterson, E. B. Fred, and H. F. Wilson, 1931. Some characteristics of yeasts found in fermenting honey. *Jr. of Agr. Res.*, 43: 121-131.

(1) Phillips, E. F., 1931. The present status of honey investigations. *J. of Econ. Enty.* 24: 581-589.

(2) Fabian, F. W., 1920. Report of the Bacteriological Section, Fifty-ninth Annual Report of the State Board of Agriculture. (1920)

(3) Fabian, F. W., and R. I. Quinet, 1928. A study of the cause of honey fermentation. *Tech. Bul.* 92.

(4) Lochhead, A. G., and Heron, Doris, 1929. Microbiological studies of honey. *Dom. of Can. Dept. of Agr. Bul.* 116 n. s.

(5) Marvin, G. E., 1928. The occurrence and characteristics of certain yeasts found in fermented honey. *Jr. of Econ. Enty.* 21: 363-370.

(6) Nussbaumer, Th., 1910. Beitrag zur Kenntnis der Honiggärung nebst Notizen über die chemische Zusammensetzung des Honigs. *Z. Unters. Nahr. und Genussmittel.* 20: 272-277.

(7) Richter, A. A., 1912. Ueber einen osmophilen Organismus, den Hefepilz. *Zygosaccharomyces mellis acidii* n. sp. *Mykol. Zentralbl.* 1: 67-76.

(8) Lochhead, A. G., and Leone Farrell, 1930. Soil as a source of infection of honey by sugar-tolerant yeasts. *Canadian Jr. of Research.* 3: 51-64.

(9) Lochhead, A. G., and N. B. McMaster, 1931. Yeast infection of normal honey and its relation to fermentation. *Scientific Agr.*, 11: 351-360.

not give a satisfactory test for diastase (an enzyme) as inferior. It has been found (11) that diastatic activity of American honey shows considerable variation. The darker honeys, as buckwheat, show high values; the light honeys, as orange and alfalfa, give very low values, while clover gives medium values.

One of the advantages of heating honey, aside from preventing it from fermentation, is that it prevents crystallization to some degree.

A second method which prevents fermentation is storing the honey at a temperature of 52 degrees F. or below, since honey yeasts will not grow below this temperature (10). This is an ideal method, but adds to the expense of the finished product and is not available in many cases.

A third method is the addition of preservatives. Lochhead and Farrell (12) have investigated this and consider sodium benzoate, sodium sulphite and sodium bisulphite the most promising of all the preservatives tested. The only one which could be used in honey intended for consumption in the United States is sodium benzoate at the rate of 0.1 per cent. Honey for export could be treated with other preservatives, depending upon the kind of chemicals permitted by the food regulations of the countries to which they were exported.

Crystallization of honey

Honey has a tendency to crystallize under certain conditions. When honey crystallizes the glucose present absorbs one molecule of water to form glucose hydrate. The amount of moisture removed from the honey amounts to 9.09 per cent by weight of the crystallized material. Some think that because honey has crystallized this decreases the tendency to ferment, but the opposite may be true, since the percentage of water remaining in proportion to the solids in the non-crystalline state may be greater after crystallization than before. This increase in relative proportion of free water may be enough to create a condition favorable for the growth of sugar-tolerant yeasts.

Summary

Storage of large amounts of honey has shown that a certain percentage of it will spoil. The latest information is that during the first year of storage 5 per cent will ferment. If held for two years, about 25 per cent will ferment.

Sugar-tolerant yeasts are the cause of honey fermentation. Practically all honey contains them. They are

(Turn to page 296)

(11) Lothrop, R. E., and H. S. Paine, 1931. Diastatic activity of some American honeys. *Jr. Ind. and Engr. Chem.* 23: 71-81.

(12) Lochhead, A. G., and Leone Farrell, 1930. The effect of preservatives on fermentation by sugar-tolerant yeast from honey. *Canadian Jr. of Research*, 3: 95-103.



By Natt N. Dodge

Dr. Jones in Seattle Times

Dr. W. Ray Jones, Seattle physician and hobby beekeeper, was made the subject of a feature story which appeared in the Seattle Daily Times of May 12. A photograph of Dr. Jones, his hands full of bees, appeared in connection with the writeup which explained the doctor's hobby of attic beekeeping and commented on the excitement which prevailed in the neighborhood when a swarm poured from the attic and settled on a nearby tree. Humorous comments were made by the reporter regarding the newspaper photographer's antics when a bee selected his ear for a lighting place. Dr. Jones reports that following the writeup several persons called him at his office and requested that he come out and capture stray swarms in various residential sections of Seattle.

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Fisher Flour Broadcasts

Through its radio advertising, the Fisher Flouring Mills Company, whose product is distributed throughout the Northwest, has been suggesting the use of honey in connection with hot biscuits, muffins and other home-baked hot breads.

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P. S. Q. Stores Feature Honey and Biscuits

An interesting tieup between honey and hot biscuits was featured in an advertisement sponsored by the P. S. Q. Stores, an organization composed of several hundred independent grocers in the Puget Sound region. The advertisement featured one large package of Bisquick, the all ready biscuit flour manufactured by the Gold Medal Flouring Mills, and one comb of cellophane-wrapped honey, both for 43 cents.

— o —

Will the Navy Use Honey?

Honey producers throughout the entire Northwest are much interested in the outcome of the bill introduced in the national House of Representatives by Representative Smith, Republican, of Idaho. If passed, this bill will provide that honey be included in the rations provided for men in the United States Navy. The bill was presented to the House on June 2 and was referred to the Naval Affairs Committee. Washington beekeepers are especially interested because of the presence of the United States Navy Yard at Bremerton,

Washington, where a great many men are stationed and where battleships are supplied with rations.

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Swarming in Full Blast

Reports from Mr. C. E. Drexel, of the Frank Drexel & Sons Apiaries of Crawford, Colorado, indicate that many western Colorado beekeepers are having difficulty with swarming this year. On June 1 Mr. Drexel remarked: "Swarming is going full blast here now. 'Most every factor that makes for swarming came in together this year and we are having our hands full." Mr. Drexel states that he is making plans to put up a honey exhibit and display of honey-producing flowers together with photographs illustrating various interesting beekeeping activities at the huge dining hall located at a resort hotel on Grand Mesa in western Colorado this summer. Grand Mesa is the featured recreational region of western Colorado and is visited by thousands of tourists and vacationists each summer. "This may encourage the use of honey on the tables, and maybe make a few converts to its general use," says Mr. Drexel. Western Colorado beekeepers expect a bumper honey crop.

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Two Dollars Per 100 for Worker Bees

Dr. R. L. Webster, entomologist at the Washington State College, attracts attention to the fact that one of the biological supply houses which furnishes plants and animals to college laboratory classes for dissection and examination, charges \$2.00 per hundred for preserved worker honeybees, but asks \$2.50 per hundred for drones. Dr. Webster seems to feel that in this case, at least, drones are more valuable than workers. The same supply house furnishes worker larvae at \$3.00 per hundred and worker pupae at \$3.75 per hundred. Drone larvae and pupae are not quoted.

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Sears-Roebuck Hives a Swarm

Mr. Herbert Smith, manager of the retail store of Sears, Roebuck & Co. in Seattle, Washington, prevented a near panic one bright May morning. A swarm of bees attempting to find a clustering spot on the face of the five-story brick building created great excitement among the hundreds of people on the street in front of the

(Turn to page 297)

How Much Honey Do Beekeepers Eat?

By a Subscriber

RESULTS of the recent inquiry as to how much honey is consumed by beekeepers and their families have been compiled. One wonders, however, whether this is really representative of beekeepers in general or whether, as in most straw votes, the replies are likely by those on only one side of the fence. The question is whether only those beekeepers who use honey largely have sent in replies or whether it is really an average. If the replies indicate a true average consumption, a great faith in the value of his own product is indicated, because the average consumption per caput among the replies received is about 55 pounds!

Is this true for all beekeepers, or were those who used little or no honey ashamed to send in their replies? There were only thirteen reported using less than 10 pounds per person per year, and this was in two families using 105 pounds yearly. Even this would mean a considerable consumption of honey if 800,000 or a million beekeepers and their families ate as much as eight pounds per year. You may figure for yourself what it would be if each one ate over 100 pounds yearly, as thirty-six of them did!

But are these high figures a true average? Did not the enthusiastic honey eaters send in their replies while the remainder kept quiet about how little they ate?

The figures are as follows:

Number of families reporting—	80
Average consumption per family	225
Number of honey eaters reported on —————	329
Average consumption per person	55
Largest consumption per person (but only one in family)	200 pounds; total 200 pounds.
Second largest consumption per person,	182 pounds; total 730.
Third largest consumption was by a customer, with 173 pounds per person and a total for the family of 520.	
Smallest consumption per person was 8 pounds, with a total of 25 pounds for the family.	
The largest family reporting was eighteen, each consuming 75 pounds yearly; total, 1350 pounds.	
Number eating 100 pounds or over per person —————	36
Number eating 50 pounds or over per person —————	181
Number eating 25 to 50 pounds per person —————	129
Number eating 10 to 25 pounds per person —————	64
Number eating less than 10 pounds per person —————	13

Here are a few interesting quotations from those who wrote letters as well as replied to the questions:

"We use it in every way; small children put it in their milk; make jelly with honey instead of sugar; sweeten ice cream with it; make candy, and just eat it because it is good. Hard to get the children to eat other things, yet do not believe it easy to find a more healthy family. There should be a law against a fellow keeping bees if he does not eat honey."

"I always set aside between fifteen and twenty 10-pound pails at extracting time for our annual home supply, and sell the balance."

"Personally, I cannot eat white sugar, as it causes me to itch and burn and causes an eczema, so I use honey exclusively."

"Have twenty-five colonies and have five or ten acres sweet clover for pasture each year. Never worry about disposing of all produced."

"We use approximately 500 pounds yearly in our family of three. This may be hard to believe, but if there is any sugar in the house one would have to find it in the fruit or some form of food prepared outside the home. We use it three times a day and in all fruit canning and baking. Last June the son and myself were alone from the tenth of the month until July 12. We used a sixty-pound can of honey in that time—and the usual other foods for the season."

"I think many beekeepers could use more honey and relieve the market greatly."

"Mr. ——— was induced to use honey by advising him to try it on grapefruit. Now the family uses 80 pounds per year."

"There are six in our family and they all use honey wherever sugar can be used; never a meal without it on the table. Having a large assortment of flavors, we keep changing about and never seem to tire of it. We have had one-half gallon of syrup in four years and use sugar only where necessary in canning. We used, in 1929, 600 pounds; in 1930, 660 pounds, and in 1931, 800 pounds."

"Three of the six use it with hot water and milk with their meals—and say! don't talk coffee to them! Father, of course, must have his coffee. All the members of our County Beekeepers' Association are heavy users of honey and we never have a feed at a meeting without our own sweet. P. S.: We use it for cooking, baking, candy making, and find it easy taking."

"At present four people eat at our table. One pound of comb honey per day disappears over said table, and about one pound of extracted. No meals are served on our table without honey in several styles. Not

all of us eat honey regularly. My wife prefers jams and jellies."

"We use from 300 to 400 pounds, as we fill the honey pitcher once or twice daily from different cans; besides, we use a large amount in baking and cooking. My champion honey eaters are an elderly man and wife and his sister. They average ten pounds a week and buy it by the five-gallon can. From my experience with customers, it seems there are more large honey eaters among those who keep no bees than among beekeepers themselves."

"There are eighteen of us when we are all at home; when they are not, I send them honey. They all eat honey, I'll say! I couldn't tell you *exactly*, but I reckon all the way from 1200 to 1500 pounds! Ouch!"

"I use honey in the brine to pickle meat; eight pounds salt, four pounds honey, one teaspoon black pepper, one teaspoon red pepper, one teaspoon baking soda."

"Eight of us used up 400 pounds last year. Oldest boy is twelve and we never have had a doctor yet, only once I paid him a dollar when one boy was bit by a dog. I believe honey is a much greater food than people think. Our family of eight never got any sickness."

"At present we must buy all the honey we eat. If the five colonies I now have produce a crop, we will eat much more."

"I think eating honey every day has been a great help to me in eliminating gas from my stomach."

"Ten of us eat 500 pounds honey and 100 pounds sugar."

"Three of us eat 150 pounds yearly. I keep twenty colonies in the city districts, producing 1500 to 2000 pounds yearly, selling most of surplus to friends who previously never used honey. The 'market' don't know I keep bees and have done so for thirty-five years."

"Honey is on the table every meal. One year I bought sugar to feed the bees. That taught me not to sell out too close."

"Wife and I eat 200 pounds per year. I don't allow anything to get between me and the honey dish. I often buy honey of different flavor in order to have a little change."

"Our four children are married and gone, but wife and I consume 75 to 100 pounds yearly. We keep a few stands of bees because we love honey and never seem to tire of it. Why doesn't someone tell the story of the immense amount of candy consumed in a year? Three-fourths of that appetite for candy could be better satisfied with honey, Nature's own natural sweet. Children crave sweets

(Turn to page 292)

Securing Choice Queens

By E. L. Sechrist, Association Apiculturist,
Bureau of Entomology, United States Department of Agriculture.

Part 3

Methods of Introducing Queens

THE colony that is to be requeened should contain neither a queen nor a queen-cell; otherwise, the new queen will be destroyed immediately. It is convenient and desirable to introduce the new queen as soon as the old queen has been killed. If this is not possible and the colony has remained queenless for two days or more, each comb must be inspected carefully for queen-cells before a new queen is introduced. When doing this, the bees should be shaken off each brood comb in order that no cells may be overlooked. Queen introduction is more successful during a honeyflow, and even experienced beekeepers expect some losses at any other time.

It should be an invariable rule that no colony be opened or manipulated within a week after the new queen is introduced. Neglect of this precaution will often result in loss of the queen, as even a slight disturbance may cause the bees to "ball" the new queen and destroy her or else injure her so much that she will be superseded later in the season. It should always be remembered that much of the superseding in any apiary is due to disturbances which cause the bees to ball their own queen, injuring her so that she will be replaced during the season.

Several methods of queen introduction are employed. The three methods described here are particularly adapted for use when queens are reared in the same apiary in which they are to be used. Direct introduction of the queen into the new colony is also feasible under favorable conditions.

The Nucleus Method

This method is particularly suitable if the colony to which the queen is to be introduced is rather weak. Take the queen with two combs and adhering bees from the nucleus and set them into the hive to be requeened, placing these combs at one side of the hive, with as little disturbance as possible, so that after the hive is closed the bees will mingle quietly and without injuring the queen.

The Push-in Cage Method

A push-in cage can be made from a piece of window screen about eight inches square. Cut a piece one and a half inches square out of each corner and bend the edges down to form a shallow box. Ravel out strands of each edge, leaving vertical wires which can be pushed down into the comb to the midrib.

Place the queen on an old comb at a spot containing some emerging brood and some honey, place the cage over her and push the wires into the comb. Be sure that no bee is in the cage with the queen. If the comb is a new one or if the wires are not pushed down to the midrib, the bees may eat their way under the wires and release the queen too soon and she will be killed. The queen, being free on the comb, will soon lay eggs and will be fed and cared for by the emerging young bees. If the queen is not released by the bees at the end of three days, remove the cage; or, better, make a hole under the edge of the cage, through which the queen will be released soon after the hive is closed and the bees have become quiet.

The Wire Cage Method

Cages for this purpose can be purchased or they can be made at home as follows: Take two blocks of wood $\frac{3}{4}$ inch thick by $1\frac{1}{2}$ inches wide, one about an inch long, the other about $2\frac{1}{2}$ inches long. Wrap a piece of wirecloth about 6 inches long tightly around the shorter block and fasten it securely with a tack. The other block is to be pushed into the open end of the tube thus made and a wire wrapped around the screen just tightly enough to allow the block to be removed when desired. A hole made through the shorter block is filled with candy, which the bees may eat out, liberating the queen. Often it is well not to permit the bees to work on the candy for a day or two until they become accustomed to the new queen. A piece of stiff paper tacked over the hole containing the candy will accomplish this. To place the queen in this cage, hold her in the closed hand below the cage and permit her to run up into it, which she will do readily. Then close the cage with the loose block and place it between the combs in the center of the brood nest. It may be hung there by a wire or by a pin or fine nail driven into the block and resting on the top bar.

An all-metal queen cage can be purchased which is based on the same principle and has, in addition, a second candy tube and a queen excluder slot, thus admitting a few workers from the colony to the queen before she is liberated.

Washing Screwtop Cans

I use a yard length of ordinary new halter chain with a square-cut link for washing the inside of cans which cannot be readily reached.

When honey cans have stood over from one year to the next, filled with honey, the inside may become coated with a blackened coat which, if not removed, will injure the color of honey placed in them later, even if filled immediately.

J. H. Sturdevant, Nebraska.

Loss of Queen in Shook Swarms

By Alfred H. Perring
Florida

THE writer has just been rereading what Mr. E. S. Miller has had to say about the cause of the loss of the queen during shook swarming. See page 562, December issue of the American Bee Journal.

Mr. Miller may be right in his judgment as to the cause of some of these losses, but I do not hardly think so in all of them. I certainly do agree with him most heartily in his admonition in the last sentence of his article, wherein he says, "It is advisable to find the queen and see that she gets into the hive and not under it or some other place."

In my early experience in the practice of shook swarming, I always took that precaution after a few losses and after seeking the advice from an older and more experienced beekeeper. At a much later time following my first losses I lost a queen or two even though I had been careful to see them safely pass into the hive. At the time of my last such loss I found the dead queen the next day just outside the hive. Wondering as to the cause, I concluded that I had held the frame upon which I had found the queen too high above the entrance of the hive and shook too hard, and the long fall had injured her, causing her death.

Queens, when in full laying condition, are easily injured in shaking, and if they cannot be made to fall upon a bunch of bees—upon a sort of cushion—it is better to lift her off with a spoon. Use a tablespoon in the bottom of the bowl of which a slot has been made large enough to envelope the queen. Hold the frame down close to the hive and when the queen climbs upon the edge of the spoon, lift her down to the entrance of the hive without a fall.

If you have no such spoon, then find your queen, turn the side of the frame she is on up and the top bar toward the entrance of the hive and lower the frame close to the alighting board and guide the queen with your forefinger from behind until she runs off the frame over the top bar and safely into the hive without falling or injury.

Since handling the queen in this way, I have had no further losses in shook swarming.

A Scenic Honey Stand on the Pacific Highway

By Fred Mandery
Washington



THE setting of this honey stand is a distinct asset. It is located on the Pacific Highway, main artery of traffic from Mexico to Canada, and there is now being worked out a plan to extend this highway to Central America on the south and part of a new extension north that will eventually land at Fairbanks, Alaska. It is already the longest paved highway in the world.

Tourists traveling notice the stand and stop to buy honey, and let me say our stand sells more honey for the other fellow than it does for us. People traveling our beautiful highways see our mountains, rivers, the ocean beaches and the valleys, watch the dipping of fish out of our rivers where smelt run so thick that an ordinary swarm catcher will scoop out four or five hundred pounds of fish in a day.

They see all sorts of game—bear, deer, elk, salmon of certain kinds by the tons. Maybe the tourist has just left the whaling station. Perhaps he has just seen a sawmill in operation cutting enough lumber in a day to build two hundred ordinary houses. He sees things he has heard of but did not believe existed.

So he is pleased and in the right mood to believe almost anything, even to believe that he can find pure honey in his own store at home. We differ in policy from many honey stands. We have learned that we can get almost any price we ask, and most honey stands get all the traffic will bear. We do not. We get the same price that our honey sells for in the city. This clinches the statement that he can get pure honey at home. This proves the statement

that we sell more honey for others than we do for ourselves.

It is an excellent thing, too, to tell people about different kinds of honey, why the kind they got and did not like may have been pure after all but from a different flower. They learn that, if they look for it, they can find honey that will suit them. They learn that there is a difference in honey prices. People traveling in this country are always willing to stop and listen. Distance does not mean much to us here; we have so much of it.

The tourists can camp wherever night overtakes them and find woods and pure water in almost any stream, in nearly every mile they travel, so they are not in a hurry to be going. The nights are cool and the days are not at all hot. It is a country to loaf in, neither cold winters nor hot summers. No cyclones, no poisonous snakes. One can bathe in the ocean one hour and pick flowers on a mountain the next. Another hour will see him so high up that he is in a land of perpetual snow.

People come here from everywhere. We have the true philosophy of the West. We do not inquire into other people's business, how much money he has, or who his ancestors were, whether he is a prince or a pauper; he is received the same—as an equal. Our population in this section has increased over 100 per cent every five years, and the pleasing part of it is that the new people are not the ones looking for jobs, but for homes, and most of them build new ones.

As I have just said, distance does not mean much to us here. A hun-

dred miles to a market is perhaps the average. Our stand sells more of our honey in these markets than is sold over the stand. We sell on the average four beekeepers' crops per year. The movement over the stand is perhaps 5 per cent of the total.

Our bees are located sixty miles from home. We operate from two hundred to five hundred colonies through the honeyflow, from fireweed, which is an excellent honey, being as clear as water. We also have honey all shades to an amber. This gives us an opportunity to demonstrate that there is really a difference in honey in such a way that people believe it. Wooden spoons are always at the stand, and whenever the question is asked "What makes honey so white?" out comes a wooden spoon. Several flavors and colors of honey are sampled while an explanation of honey flowers is given.

When the question is asked "Which is the best?" the answer is, of course, whatever one likes. Taste it and take your choice. The price is the same. It is all good table honey. Color is by no means an index to grade.

When it is put to them that way they see the point and another honey consumer is made, provided he is not overcharged. If he is overcharged, or if he is told that the honey he is getting is the best honey on earth, he will likely wait until he passes again, which may be never. Often seven or eight thousand cars pass this stand in a single day.

It is quite soothing to our vanity to be talking with a stranger, telling them where Tenino is; just tell them I operate that honey stand on the highway in the grove of trees and nine out of ten know exactly where I live. People looking for places here often come to inquire their way, saying they were told it was a certain distance from Mandery's honey stand.

The wooden money (see opposite page) for which Tenino is receiving so much publicity right now also causes our vanity to be raised. While in Seattle at a hotel, several men were discussing the wooden money and someone said "Where is Tenino?" The writer, listening in, was about to tell them, when a fellow said, "Why, Tenino is where that man with all the honey you see along the road has his stand." "Oh, yes," said several; and, believe it or not, no further explanation was required to locate in the minds of those people just where Tenino was. One party stopping at the stand had come from Texas. He said he had been watching for it since leaving Portland, Oregon.

We have shipped honey to nearly every state in the Union to people who have stopped here out of curiosity to buy some honey and liked it. Several foreign countries also

have ordered. A missionary after reaching China ordered more honey after stopping here. We do not kid ourselves by saying that our honey is the best on earth. People visiting this wonderful country often recall the billion dollars' worth of scenery they have seen when here—and a pail of honey for less than a dollar.

Somehow they associate the wonderful time with the honey and order more honey. So far we feel like we are cheating them. We send the honey, but we still keep the scenery. Somehow we do not feel badly about it, for no matter if they come from the East or South, from the Philippines, China or Alaska, if they want to revive the greatest possession on earth, memories, they can do so by going to the corner grocery and buying a pail of honey.

Let Everybody Be a Committee of One

In volume seven, number two, of "Wisconsin Beekeeping," there is a list of the various national beekeepers' meetings from 1860 to 1930. During this period of seventy years there have been sixty-four national meetings, and during this same period the name has been changed seven times.

These meetings have been possible through the efforts of the officers and others of the organizations, who have donated their time, and money for railroad fare and hotel bills, trying to put life in a national organization.

A national organization, to be successful, must have a large individual membership and dues that will allow it to carry on.

Now let's see what is left of the dues as charged by the American Honey Producers' League. The dues are \$1.50 per year; 75 cents of this is for the publication of "The American Honey Producer"; at the option of the member, he is allowed 50 cents towards the subscription of one of several bee journals. This would leave 25 cents to carry on with. Compare this with the dues of the lodges you may be a member of.

Changing the name or constitution and by-laws of the national organization apparently does not help much, if any. But a live membership out of our 800,000 beekeepers could do much.

Think this over, brother beekeeper, and let's have for our slogan, "The largest national beekeepers' organization in the world."

Everybody a committee of one and it is not only possible but assured.

H. Harberg,
North Dakota.

Tenino's Wooden Money



An ingenious method of clearing business channels following a serious bank failure is described by Mr. Fred Mandery, of Tenino, Washington. Mr. Mandery, being a depositor of the bank and having all of his funds tied up at the time of closing, is in a position to appreciate the action of the Tenino Chamber of Commerce, which sponsors the program.

The Chamber printed certificates issued to depositors, in return for which they assign to the Chamber one-fourth of the money which is on deposit. The certificates, with face values ranging from 25 cents up, are redeemable by the Chamber in cash. Each depositor issues an order to the bank to pay to the Chamber one-fourth of his account as soon as liquidation has made the funds available.

The certificates are accepted as cash by merchants in Tenino and bank depositors have been able to carry on through this prompt action of the Chamber of Commerce.



The certificates are made of wood, as shown in the pictures. This "wooden money" is of two thin layers of plywood, glued together, with a piece of paper between. The "money" in this way will not split, warp nor splinter.

People in the Northwest have become interested and the demand for "wooden money" has become so great that many of the original certificates have been bought by outsiders and the Chamber will probably be called upon to redeem only a small part of the issue.

Tenino, Washington, has been for years a center of lumbering, hence the "wooden money" is appropriate. The town was named after a railroad locomotive which operated there, the 1090 (Ten-nine-0). Mr. Mandery states he has often been advised against accepting wooden money, but he is now grateful to take all he can get in exchange for his honey which he markets at his roadside stand.

We Beat Elbert's Record With 56 Bee Trees

By Charles Hotop
Minnesota

In February, Paul Elbert, of Bellevue, Washington, mentions locating fourteen bee trees (Doings in the Northwest, "A Record for Bee Tree Colonies," page 70).

In the spring of 1930, one Sunday, while out walking in the Yellowstone Valley in Montana, I decided to see how many bee trees could be discovered in the course of several hours, the strip covering about four or five miles up the valley.

I was fortunate in locating fifty-six bee trees in all. Cottonwood is about the only kind of tree in the valley. Had I continued my search, it is very confidently felt that many more could have been located.

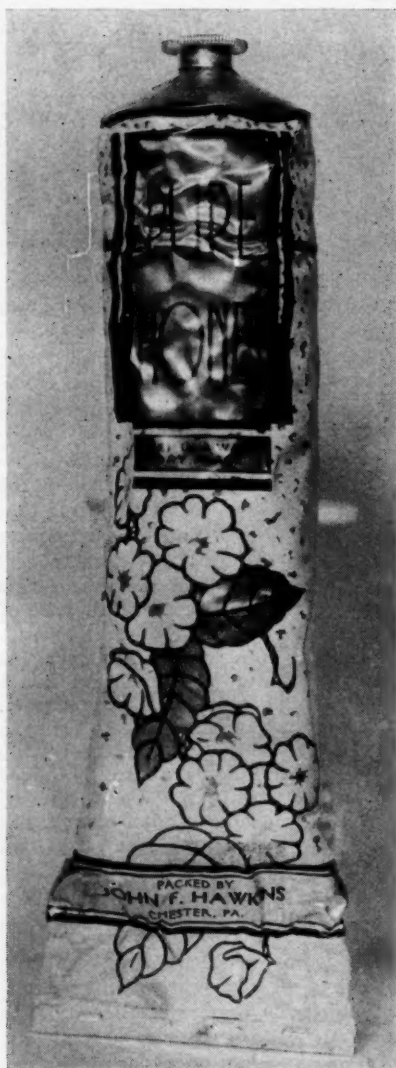
There was one place in particular that should have harbored a considerable number, by the appearance of the trees. This presumption was later verified. This particular place was on an island in the river, but I was too tired and the water seemed too cold for me to get over to the island at that time.

This was in the spring, and the bees had all apparently wintered satisfactorily in that cold climate. The location was a good commercial one, but was and had been for some time badly infested with American foul-brood.

Last year, with the assistance of a neighbor, we cut a promising tree near a yard that had been cleaned up just previously, enabling this colony that had been known to occupy the tree for years to have freedom to rob diseased material and contract the disease. On exposure, however, the colony in the tree showed no trace of disease whatever. Unfortunately, I could not cut any of the numerous trees in the locality which I report.

[Not all bee trees are free from disease, however, as our experience shows. One summer while cutting a bee tree in the neighborhood of a badly infested locality, we found a most promising colony in which the combs were entirely diseased, and we destroyed the nest by sprinkling it with gasoline and setting fire to it on the spot. So at least we know of this one bee tree in which disease was bad.—Editor.]

Honey in Tubes



This picture shows how honey is packed by John F. Hawkins, of Chester, Pennsylvania. The tube is similar to the kind used for shaving cream and tooth paste and will hold eight ounces, two ounces, or one ounce of honey. They make easy serving, save shipping weight and breakage. It opens new and bigger markets. At any rate, it is a novelty.

Mr. Hawkins reports that salesmen covering Philadelphia and vicinity find favorable reception for honey in tubes. To fill the tubes requires special machinery. Salesmen are on a commission basis. An attractive counter display is furnished to the stores in which these tubes of honey are well displayed. The one-ounce size sells for a nickel, two-ounce 10 cents, eight-ounce for a quarter.

Hand Mating of Queenbees

By Harry H. Laidlaw, Jr., Field Assistant
Division of Bee Culture Investigations, Bureau of Entomology,
U. S. Department of Agriculture.

THE breeding of the honeybee has always been a more or less haphazard process, and, while some progress has been made by careful breeders, there has been no marked improvement in the various races of the honeybee, as has been the case with practically every other line of livestock with which man has been intimately associated since the beginning of history.

Attempts to control breeding by the use of large tents or other inclosures in which selected virgin queens and drones were permitted to fly have been unsuccessful. It seems strange, however, that more efforts have not been made to mate queens and drones by hand, since in trying to improve upon or to imitate nature, man has, on many occasions, attempted experiments seemingly far more difficult than that of trying to effect insemination or mating between a selected queen and drone. The mere fact that it is a common occurrence for a queen to return from the mating flight with a portion of the copulatory organ of the drone attached to her, and also that under certain conditions drones will instinctively eject their copulatory organs, lent hope to the possibilities of the controlled hand mating of queens.

A number of years ago the writer tried to bring about copulation by spreading apart the anal plates of the queen with a pair of forceps and everting the penis of the drone directly into her vagina. The queen was held in the left hand while the drone was held in the right, no mechanical device whatsoever being used in connection with the operation. The method was extremely crude, but apparently a number of queens were normally fertilized in this way, since the colonies they headed were normal.

In the past few years the writer has been investigating the hand mating of queens at the Southern States Bee Culture Field Laboratory at Baton Rouge, Louisiana. With the method at present in use the queen is confined in a glass tube which permits the tip of the abdomen to protrude. The anal plates are held apart by a horseshoe-shaped clip of fine wire which fits snugly into the copulatory pouch and leaves the base of the sting and the vagina exposed. While the drone is being held in the hand, the reproductive organs are at first partially everted by bringing pressure to bear on the abdomen, and the organ is then inserted into the vagina, where the eversion is completed. Injuries to the queen are reduced to a minimum and the method is more satisfactory than that

of causing the drone to make the initial eversion directly into the vagina. The work is done under a binocular microscope of low power.

Practically every queen treated by this method has been inseminated to some degree. Several have headed normal colonies. Many of the queens so inseminated, however, have been kept in nucleus boxes until it was determined whether mating was successful. Most of them have been killed and the spermathecae examined and compared with that of a naturally mated queen for the purpose of determining, at least roughly, the degree of insemination.

The hand insemination of queens has not yet been utilized in attempts to improve the honeybee. All available time has been spent on improving the technique. The method, while not suitable for routine work in mating queens, gives results that are satisfactory enough to make it useful as a tool in a study of the genetics of the honeybee.

(1) A contribution from the Southern States Bee Culture Field Laboratory, Baton Rouge, Louisiana, maintained by the Division of Bee Culture Investigations, Bureau of Entomology, United States Department of Agriculture, in cooperation with Louisiana State University.

(2) The writer wishes to express indebtedness to Prof. W. H. Gates for his advice and interest in this work.

Book of Trees

Every beekeeper loves trees. Whether he thinks of them as a source of shade for his apiary, to be used as a windbreak to protect his bees from the blasts of winter, or the source of nectar to fill his hives, they are of first importance to him.

The A. T. De La Mare Company of New York recently added a new volume to their delightful series of garden books. This one, "The Book of Trees," by A. C. Hottes, is a welcome addition to the literature of trees. It tells about street trees, nut culture, evergreens—in fact suggests trees for any situation or any purpose. It assists you to recognize the different kinds, tells how to prune them, to plant them, to repair them when injured, and how to propagate them. In short it is a very complete handbook of trees and gives the kind of information that the everyday man wants when working about his home grounds.

Prof. Hottes is widely recognized as an authority in matters of horticulture, and this book comes up to the same high standard set in previous volumes. The book has 440 pages and sells at \$3.00. It may be ordered from the publishers or from the American Bee Journal.

Drifting Bees

By N. G. Eremie
Braila, Roumania

The statements given by Mr. George E. King, in the April number of the American Bee Journal, do not appear to me to be satisfactorily generalized. The colony No. 1 which he mentions appears to me to have been too much disturbed to give a normal result. He must have taken out some of its bees as well as some or all of its sealed brood in order to confirm results. He has shown us that strange bees are usually accepted in hives, which we knew already.

Precise statements on the number of foreign bees which remain as inhabitants of the colony would be most interesting. If this number reached 30 per cent, as Mr. King suggests, then the spirit of the hive would become rather—international.

If anyone could make observations on the number of bees which desert and become home bees in that colony, one might ascertain whether this international spirit goes on increasing.

The drones are naturally international gentlemen. Perhaps if we could get the young ladies (workers) to become willing international workers, we might secure international colonies. This is somewhat on the Jules Verne ideas, but Jules Verne suggested many things which have become facts.

[The reader will find an editorial in our May number on this same subject. We do not believe in encouraging drifting.—Editor]

Short Distance Moving

If bees in an outapiary must be moved short distances in the fall, I know from experience that hardly a bee will be lost if a plan often mentioned in the American Bee Journal is followed: When the bees are not flying, cram the entrance full of grass or leaves and leave it to the bees to work their way out. Confinement until they have done this causes them to mark their new location. The plan might not work in hot weather, because of the danger of smothering the bees.

S. F. Haxton, Pennsylvania.

Honey As an Internal Irrigator

An ounce of honey mixed with the water used in the internal bath, instead of the usual soap or other ingredients which are apt to be more or less harmful to the intestines, will be found far superior and more beneficial to the health, as honey contains great healing properties and is also a natural laxative to begin with.

Try it once and be convinced. It gives good results!

J. B. Merwin, New York.

A Handy Honey House Truck



The Easy Lift truck was built by R. G. Hibbard, of Manhattan, Montana, especially to meet the needs of local beekeepers who wanted a better means of handling the heavy supers in the extracting house. It has proved so popular locally that many bee men near Manhattan have secured one, but it is unknown elsewhere for the simple reason that it was made locally to meet a home need. The pictures show the truck and how it is used. It is light, strong and easy to handle. A small boy can easily move a stack of four or five filled supers by its help.



Supers are stacked on two-by-fours set on edge. This leaves room to run the truck under the pile and move it to the desired location. There is a foot pedal to lift the platform with its load, and the platform is mounted on ball-bearing rollers. When it is desired to unload, it is only necessary to release the latch with a push button. Since the Easy Lift truck was

designed especially for the use of beekeepers, it serves their needs much better than the ordinary warehouse equipment.

Crotalaria for Honey

There are several species of crotalaria which are native to our southern states. They are commonly known as rattlebox or rattlepod. If they are important to the bees the fact is not generally known; at least I have not found anything published concerning them in this relation.

Of late, however, some introduced species have come into common use as cover crops on sandy soils in Florida. They are especially useful in the orange groves, where they are an important source of nitrogen.

One species is reported as of considerable importance as a source of honey in the orange districts. Dr. Waldo Horton, of Winter Haven, Florida, reports that his bees get surplus honey from *Crotalaria striati* usually in early winter. He has had a strong colony to fill a fifty-pound super from this source. He reports the honey to be dark amber with maroon tinge, and strong, not too pleasant flavor. He would classify it as a baking honey rather than table honey. He states that bees also work on *Crotalaria spectabilis* to some extent.

The fact that crotalaria is being grown in constantly increasing acreage and that it is a winter bloomer makes it of much importance to the beekeepers in the region where it is cultivated extensively.

Frank C. Pellett.

To Destroy Moths With Sulphur Without Having to Use Fire

(From the Bulletin D'Apiculture pour la Suisse Romande)

The production of sulphurous acid in a hive or in a closet filled with combs is not without danger, a fire being always a dangerous possibility. Last year, for instance, a beekeeper of Vaud Alps set fire to his bee house in treating combs for moths. The following process, borrowed from L'Apiculture Italiana, does away with this risk:

Put a glass of water and about two glasses full of sulphuric acid into a glass recipient. Be careful to pour the acid into the water, and not the water into the acid, as the latter process would be dangerous. Add a spoonful of plaster. Close the hive or receptacle carefully. The production of gas is immediate and abundant. The vessel in which the combination takes place must be large enough for the liquid not to run over during the combination.

Long Distance Moving

By Herman Ahlers
Oregon

BEING located near Chico, in northern California, I found, early in April, that prospects for decent honeyflows were very slender. The few light rains we had experienced had barely moistened a dozen inches of the top soil, leaving all below dry as powder.

Here I was with a lot of bees that needed feeding if I wanted them to be in condition to gather nectar from star thistle, which would open in July. The important questions were: Should I feed? Was there no other way out of it?

After deliberating with Mike Michelson, a beekeeper of my acquaintance, we both concluded that it would be cheaper to move our bees, or at least some of them, to a locality where honeyflows were more certain. As I had kept bees for forty-odd years in Clatsop County, Oregon, was familiar with the situation there and knew the honey flora on the coast, we concluded to try our luck in one of the coast counties, Tillamook or Clatsop—either one would be good enough.

The distance from Chico to our destination was great—seven hundred miles—and we wanted to move by truck. While Mike had moved bees in California from location to location, I had practically done none of it. That I was ignorant of migratory beekeeping turned out to be of benefit to us, because it made us think out and select better methods for transporting bees.

For short hauls, the methods employed in California are perfectly satisfactory. Some beekeepers use wire screens on top of the hives, some in front of the entrances, and some move without either—they simply leave the entrances open, load up after dark and go. C. I. Graham, who could well be called the father of migratory beekeeping, moves his bees with open entrances.

I had read in the *American Bee Journal* of a certain beekeeper who used burlap instead of wire moving screens. That idea looked good to me; it certainly was much cheaper than purchasing or making screens from wire. They proved to be not only cheaper but more effective. The sacking kept the bees dark while giving plenty of ventilation; it permitted the use of an easy method to water, and was not destructive to bee life during transit, as the hard, unyielding wire would have been.

All transporting of bees is done at night in California. This is very well for short hauls; but Mike and I

reasoned it out this way: Disturbing bees at night by being moved and the natural restlessness during daylight hours would prove too much of a strain on them; it would shorten their lives. On the other hand, if we moved by daylight the bees would have all night to settle down for a rest.

This change from dark to daylight moving turned out even better than we expected. The rest the bees had during the night, together with sacking as screens to keep them dark in the day, induced quietness for a number of hours in the morning; so quiet were the bees in fact that Mike exclaimed during the first stop for lunch: "The bees are all dead."

We watered usually between one and two o'clock p. m. The method employed was altogether of Mike's design; I thought that surely he would drown every single bee. Being a Californian, he believes in "treating them rough." But his method was simple. We stopped near a water hose at a filling station. Mike clambered up onto the load and played the full stream on top of the hives until the water rushed through the burlap of the lowermost.

"Hold on," I yelled when I saw what he was doing. But he only smiled a kindly smile for my ignorance. I don't know how the bees enjoyed the tough sousing they had, but it did them good, and we found when we opened the hives later that they had stored some water in combs.

I shall describe the second trip, as the first and third were unusual. On the first we moved one hundred and sixty mating nuclei in double eight-frame hives. Of necessity they had the bottom boards on and could not be watered correctly. Six of them died on the road. The third load was merely package bees without queens, but in supers with empty comb. These bees were designed to strengthen the colonies that had gone before.

Although all bees had been inspected during the two weeks previous to moving—once by ourselves and once by our local inspector—we would again do so while preparing the colonies for moving. We had no wish to mess up a clean locality with disease.

To expedite changing bees from a hive to the one in which they would be moved, we had prepared the latter by nailing burlap under instead of wooden bottom and had fastened the half of a sack intended to cover the top, on one side, leaving ample room for combs to be passed in.

We inspected comb after comb, looked for disease, and the queen, and selected first a comb containing four or five pounds of honey; we thought that this amount would carry the bees through. Whenever a comb was finished it was placed in the prepared hive. As soon as the combs for one hive were selected, the top was nailed on.

We intended to take six combs of solid brood, one with honey and one empty. The latter, hung in the center, provided in some slight way ventilation between brood combs.

As the hives were to be piled from four to five high, we needed some arrangement that would permit ventilation between tiers. To have it so, we laid three 2x4's lengthwise on the platform of the truck; then crossing these, 1x2's were laid crosswise to fit under the ends of hives. We followed this method for ventilating between tiers until the end. Over the top of all we placed brush; the green foliage sheltered the bees from the direct rays of the hot California sun. After tying the load, which included bedding, grub, ax, and a few other necessities, we were ready to move.

At two o'clock in the afternoon we started the first day's trip, ending up at dark in the foothills. We prepared a meal, ate it, and were then ready to lie down for a night's rest. I slept in a dry ditch, sheltered from the icy wind of spring and altitude by scrubby manzanita.

Upon arrival in Clatsop we unloaded and set the hives in convenient rows and in pairs. At dusk we went from hive to hive and tore the sacking loose at one corner to release the bees. The trip so far had cost us three and a half days and three nights. The next day we used to find a permanent location. This found, we were ready to make the final move, but first we must inspect the bees.

We could hardly wait for break of day to see how the bees had fared; they had been off from the truck two nights and one day. In what condition were they? Had they found nectar? I knew they were short of stores. Some of the colonies had been shut up two days longer than the rest on account of a bad storm interfering with packing.

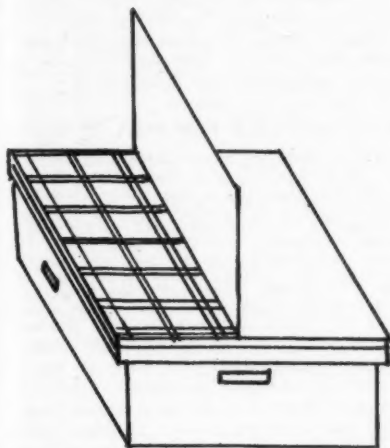
To make a long story short, no colonies were dead except only enough individual bees to account for natural dying. But they had gathered nectar. We estimated that the best had secured as much as fifteen pounds in the short space of

one day. However, two had destroyed their brood and had to be helped by changing nectar-filled combs with empties.

To recapitulate: The points to be observed in moving bees long distances are: burlap on top and bottom of hives instead of wire screens; ventilation under bottom and between tiers; shading of hives while in transit; sufficient honey—but no more—to carry bees to their destination; generous watering once a day, and daylight moving.

Daylight moving is the most important of all.

How Do You Paste Your Labels?



I have tried every way I ever heard of or thought of and I have finally found a way that I think is good enough to pass on. It is not my own idea. I saw it in use at a large wholesale house. These people put up a good many products under their own label and so need to put on thousands of labels every year.

It's simple, too. Just get a piece of sheet metal (I use a metal hive cover) and mark it off in squares just large enough to enclose the label you wish to use. Now when you are ready to paste labels, take a wide brush and quickly spread paste over the metal sheet and put a label in each square. Then a sheet of paper as large as the metal is spread over the labels and smoothed down with the hands. Fold the paper back, exposing only a few rows of the labels. The labels should be placed on the jars as quickly as possible. If they remain on the metal too long they may dry out and stick to the metal.

J. C. Elliott, Kansas.



from the Little Blue Kitchen

July

This is the month of the Fourth of July,
With fireworks a-splutter,
And bunting a-flutter
And flags floating proudly on high.

We all know the story that history tells
Of the wonderful WHY
Of the Fourth of July,
Of the guns, and the speeches, and bells!

And let us all join in the gladness
That should urge every heart
To take a real part
In Fourth of July's merry madness.

Ay, now is a time when you and I
Should hold high above
Everything that we love
That liberty born on the Fourth of July!
Lida Keck-Wiggins.

THERE'S something gets into the blood, gets right under the skin, when the Fourth rolls around. It affects men at their places of business and women in their kitchens. It's the urge to get out and go some place; the desire to have a picnic; to "shoot off" fireworks; to watch a parade, or be in one; to get out the flag, shake the dust from its folds and hang it in front of the house.

Wonder why? Well, just because we are Americans, and Americans like bright colors, and music and something doing. They also like the feeling of freedom that comes from getting out into the open, and somehow the Fourth of July means freedom any way you take it. Ever think of that? Good time these days of "reds" and "bolsheviks" and other malcontents to get out on some day like the Fourth, far out somewhere beside a little purling, merry stream; somewhere where the sky is blue and the grass green, and the trees make canopy overhead.

Oh, out there where one can think sanely and quietly and be free even for a day from all the worries of the "depression" and the problems of making a living one can appreciate truly the fact that he lives in the land of the free, and that after all the American heart so loves that liberty that one day (and that soon, please God) he will break the shackles of hard times and fight through to the country of heart's desire—where prosperity will reign and folks live natural, normal and happy lives. Make this Fourth a going-back-to-nature day. You can't do anything more patriotic!

And when you go out for the day and are getting your luncheon ready, don't forget our good friend the honey. Honey comes from meadows anyway! Why not take some of it back and eat it on its native heath? Just plain honey, "gone granulate," makes a lovely spread for health sandwiches. It also will give you pep for the games you want to play after lunch, and not give you any indigestion after the outdoor repast.

Incidentally, Honey Lady has several new ideas for the use of honey in preparing a picnic lunch, or lunches for children. A charming young mother of New Jersey contributes this one and says her child, who has a most delicate "tummy," enjoys these sandwiches tremendously. They are made as follows: Slice graham bread thin and spread with fresh butter. (If it happens to be sweet butter, the result will be even more delicious.) Then spread over this peanut butter mixed liberally with strained honey.

This same young matron, who is one who entertains often, added that when she serves peanut butter and honey sandwiches for parties she uses white bread, and concluded, with that triumphant smile that comes to any hostess after a successful party: "And when they were leaving, you'd be surprised to know that several of them whispered to me that they wished I would give them the recipe for my delicious sandwich filling."

It's good news, too, to know that honey is now being put up in tubes like those used for tooth paste. This would make it possible and convenient to take one's daily ration of honey along on a motor trip, or on any journey by train, boat, or even air. You see some folks who are not permitted to use cane sugar find it quite a problem to get the prescribed honey-sweet at hotels, restaurants, on trains, etc., and certainly when gypsying on a long motor trip.

Somebody realized that and, behold, the honey-en-tube discovery!

— o —
Oh, Yes!

The other day a woman friend,

who is a writer of jokes for the funnies, graced Blue Kitchen with her presence and chatted to Honey Lady as she cooked.

"Did you hear," Honey Lady said to her, "that Mary McFarlane has had to divorce her rich husband?"

"Yes, I heard that," said the Funny Lady.

"After all," Honey Lady said regretfully, "it didn't pay her to go

out of her set and marry into society, did it?"

"No," answered Funny Lady, looking up with a little bird-like movement of her head, "and that reminds me of something I once wrote for a magazine . . ."

"Yes?" encouraged her hostess.

"It's this, my friend: Did you ever notice that folks that go around with bees (social or otherwise) in their bonnets frequently get stung?"

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

MAKING SHOOK SWARM

Please be so kind and let me know if my plans of shake swarming would work: By taking all brood combs except one and shaking the bees back in the old hive, including the queen, moving the hive with the brood in it to a new location. Would I have to close them up bee tight, say for about three days, by jamming grass in the entrance and let them selves dig out? Of course I intend to shade them well for that time and put screen on top, and raise the top about an inch; then I wouldn't have to put them in cellar.

I don't know how to judge how many bees to leave with the brood, but suppose I take two frames of brood (well filled), shake one off at the old hive and the next one don't shake, but give it to new hive. Would that give too many bees to the new hive? Should I not shake, say for instance, one out of three and figure on about one frame well filled with honey? Or should there be more for about five frames of brood? I would like to give them untested queens, as those bees are nearly black. Should I give them the queen (in cage, I mean, as they come by mail) just as soon as I put them in the new hive, or should I wait a few days?

WASHINGTON.

Answer—As you are in the far northwest extremity of the country, you are probably in a cool region. In that case you must make sure that the brood is not chilled. So you must not make the division until the weather is warm enough, and you must leave enough young bees to take care of the brood. In fact, you should only shake out young bees enough to care for the brood in the broodless hive, as soon as the queen supplies the cells with brood. I judge that shaking about half of the bees would do it. But if you do not shake them out clean you will have plenty of young bees, and these will not desert the hive, especially if you have given them a queen. So it will not be necessary to close up the hive; only the older bees, that have already had a flight, will leave never to return.

A still better way, which I have much practiced and which has always been satisfactory, is to make a shaken swarm and then put the combs of brood with a few young bees on the stand of a third colony, instead of on a new stand. The few bees that are left and the hatching bees will take care of the brood, and the worker bees of the third hive will strengthen this division so that it will be fit to divide also again in a few days. In this way there is no chilling of brood. The colony which is removed to a new spot loses all its field force. But it is soon made up by the young bees that hatch daily.

NOT "ISLE OF WIGHT," BUT "MALDE MAI"

I want your opinion re a stock of bees which are showing signs of disease. The symptoms are much like those which used indicate incipient "Isle of Wight" disease in England (where, prior to 1925, I kept bees for many years and had a good deal of experience with Acarine disease, unfortunately). However, I understand that the parasite of Acarine disease has never been found over here. No doubt other bowel diseases resemble it in some symptoms. Briefly, these bees, which wintered well and had five frames of brood by April 1, began about then to show a few old shiny workers wandering about the alighting board and continually scraping their bodies with their hind legs. A short time later I saw similar bees on the ground, unable to take wing, their abdomens appearing distended. On killing and crushing these, a great deal of muddy-looking faecal matter came from them. About a week ago a great many young bees took their first flight and a day or so after I saw a number of these loitering at the entrance, unable or unwilling to fly, going through the same scraping motions with their feet. Two days ago, warm, after three days' cold rain and cloud, there were many of these loiterers, as well as groups on the ground gathered stupidly together; also, I saw dead bees being carried from the hive. I determined on drastic treatment to rid the hive of diseased bees, if possible. In the afternoon I moved the hive twenty or twenty-five feet, found the queen, caged her, then shook each frame in turn onto a piece of sack on the ground and placing them as cleared of bees into a clean hive body on the old site. In a short time the flying bees had taken possession of them and I then restored the queen to these.

The frames seemed clean, the brood (six frames) perfectly healthy; stores short, but I have had a feeder on for the last month, also apple bloom is giving nectar now. After this treatment there were some two hundred bees left unable to return to the hive. Of these, a number, of course, were so young as to be naturally unable to fly, but "downy" babies were in a minority. Since this treatment the hive has worked with great energy—almost like a swarm, in fact. I would like to know if such a condition is not uncommon over here; if it passes off of itself, and if not, what remedies are employed? It occurred to me the trouble might be due to poison from spray, but my other hive, the parent of this stock, which was an artificial swarm last June, has shown no symptoms of sickness and is going ahead very fast.

We used the disinfectant "Izol" both for cleaning the hive and as an addition to feed, with good results. It seems to help the bees to void their excrement. Can you tell me where Izol can be obtained over here, as local druggists do not know it? Is there any other medicament which one can add to feed to act as a purgative? It seems to me that is the need in these cases. It certainly cured some supposed cases of Isle of Wight disease (though not, of course, Acarine disease). NORTH CAROLINA.

Answer—We have occasionally seen the trouble you mention, in spring, but it was earlier than this and the trouble disappeared when the colony was fed with thin sugar syrup. There is no Isle of Wight disease in this country, that we know of. The trouble is a sort of constipation. It is called "Malde Mai" in France. It also exists in Italy, and an Italian apiarist has succeeded in curing it by feeding his bees with a preparation of honey mixed with a preparation of ginger, lavender, rosemary, and other aromatic plants.

Without doubt the disease is due to unhealthy honey. We mention it at paragraph 785 of our "Hive and Honeybee."

LOCATION FOR ORCHARD AND BEES

Which location should I select for an orchard or apiary? I prefer a south or southeast slope, but some people claim that I should locate an orchard on a north slope. ILLINOIS.

Answer—I would prefer a south or southeast exposure, as you do. But if there is danger of too early growth of fruit trees, it may be better to place them in a north exposure. But for the bees a north exposure is not favorable at any time.

HALF AND HALF FOR BEES ON SHARE

Please give me your opinion on the following question:

My neighbor has a dozen hives of bees that he wants me to take care of this season on shares. He has plenty of empty equipment, but wants me to furnish brood and super foundation and sections, and will let me have the swarms that might come off, but on the other hand wants me to prevent swarming as much as possible. What should be a fair share of the honey crop for both parties? VIRGINIA.

Answer—When we took bees on shares, we usually got half the crop and half the swarms. But each party paid for what supplies had to be furnished. If you have to furnish foundation, you should be paid for half of it. If an empty hive is furnished you for a swarm, you should pay for the hive. That is the way we used to do it. We have not taken bees on shares for many years now. But we believe that the above is still the proper way to fix it.

DISEASE CONTROL LAWS

1. I would like to have some information concerning laws for foulbrood control. Does Iowa have any laws to that effect? Am I entitled to free inspection of bees in this territory? If so, who is the inspector? Does Minnesota have any bee law and inspector?

2. Would you advise treating brood combs from American foulbrood colonies with chlorine as described in January issue of the American Bee Journal?

3. Does American foulbrood attack queen-cells?

4. Is there any state which prohibits entrance of honey except it is warranted free from bee disease? IOWA.

Answer—The bee inspector of Iowa is Prof. F. B. Paddock, of Ames, and the inspector of Minnesota is A. G. Ruggles, of St. Paul. If you will write to the inspector, asking him the questions you wish to know about the laws of the state, you will get the information. Nearly all the states have laws concerning bees and honey. But as each state has a Legislature, there is always a possibility that the laws have been changed since the law of which we have a copy was printed.

You are entitled to free inspection, if there are funds enough to enable the inspector to come and do the work. In most cases there is not enough money to allow him to go around about the state for in-

specting, so he appoints a deputy where needed. But those deputies are not always as well posted as they should be, so it may be worth while for you to do your own inspecting of your apiary.

2. Messrs. Ahrens and Tanquary are both very capable men, so their directions are certainly reliable. But as it is difficult to fulfill all the requirements, I would advise you to melt up the doubtful combs and render them into beeswax.

3. I have never seen a queen larva dead of foulbrood, but I cannot see any reason why they might not be attacked also.

4. Several states have laws requiring that a statement be furnished when honey is imported into that state showing that it is free from disease germs of foulbrood. But I doubt very much whether this law is enforced, because there are no tariff barriers between states in this country.

THE OLD STYLE DADANT HIVE

1. How does the old style Dadant hive differ from the new?

2. Would it be possible to use standard ten-frame Hoffman supers on old style Dadant hives? How do they differ from ten-frame standard hives?

3. How many frames did they have.

4. What is the largest hive made? What is the address of the makers?

MINNESOTA.

Answer—1. The old style Dadant hive is a hive with Quinby frames, with 20¼-inch top bar. We called it Quinby hive until so many people called it Dadant-hive that we used that term ourselves. The only difference between the old style Dadant hive and the regular Quinby is in the number of frames, as it contains three more than the Quinby.

After long practice, we concluded to make a hive with shorter frames—frames of the exact length of the Langstroth, but of the Quinby depth. These are the Modified Dadant hives. You will see the difference in proportions with the Langstroth at paragraph 350 of our Langstroth book, "The Honeybee."

2. Standard ten-frame Hoffman supers may be used on these hives; they are of the same length.

3. Our M. D. hive uses eleven frames. It may be made of any width desired.

4. All makers of hives make the Dadant hive. But the G. B. Lewis Company are the standard makers of them.

REQUEENING—COMB OR EXTRACTED HONEY

1. When is the proper time to requeen a colony of bees in this country, and how often should a young queen be introduced?

2. Which is the most profitable to produce, comb or extracted honey?

3. How many colonies can be kept in one location profitably?

MISSOURI.

Answer—1. The best time to replace old queens is at the end of the summer, about August or September. If the queens are not over a year old and are prolific, there is no need of replacing them.

2. Some people find the production of comb honey more profitable than that of extracted honey. This depends upon the demand for the two kinds. We have often sold extracted honey at the same price as comb and we find it more profitable.

3. The number of colonies that may be kept profitably in one location depends upon the possibility of the crop yield. In very good locations, where there is an abundance of white clover in June, sweet clover in July and fall blossoms in August and September, we find a hundred colonies profitable. In some other spots not over sixty colonies will thrive.

News Notes of American Honey Institute

We are all elated over the support just recently given the Institute by Alabama beekeepers, an item about which is given elsewhere in this number and also in the advertisement for this month's American Honey Institute ad. This is splendid. If beekeepers will get behind the Institute in this way, there will be no doubt about its continuance. We will admit being somewhat apprehensive before this report came to hand, and, of course, there is no assurance that funds will not run out in the future unless support continues.

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Batten, Barton, Durstine & Osborn Kitchen Quite Familiar with Honey

A letter from Batten, Barton, Durstine & Osborn, one of the largest national advertising agencies in New York, reports that their testing kitchen has used honey in recipe work for various food accounts. Both Mary and Edith Barber and Miss Annette Snapper are frequent visitors. These ladies have all been interested in honey through American Honey Institute. Miss Snapper has made sure that this big advertising kitchen is real familiar with some of the combination recipes of Pabst-ett and honey. They plan to use honey news in the BBDO Kitchen News, which goes to some 4,000 food authorities. They later plan to work out recipes and copy for some of their food advertising accounts around the delicacy and food value of honey.

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"Dolly Madison's Surprise"

A new booklet, entitled "Dolly Madison's Surprise," contains iced frozen desserts by the Evaporated Milk Association. On page 19 will be found frozen honey custard, calling for one cup of honey. It is a very delightful little booklet with a clever cover page.

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General Mills Get Honey

A 60-pound can of honey is being shipped to William Doty, General Mills, Minneapolis, for his Buffalo cooking school and cake making demonstration, Buffalo, New York.

— o —

Pediatricians Say Honey Is O. K.

Dr. Flood, pediatrician, in a paper in the "Archives of Pediatrics," entitled the "Selection of Sugars in Infant Feeding," reports that "Honey owes its ease of absorption to free available dextrose, and its laxative action to the levulose fraction, which is slowly absorbed, so that it eventually reaches the large intestine. These properties make honey a very valu-

able sugar in the treatment of constipated bottle-fed infants, and in our hands honey has benefited these children a great deal."

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California Plans Woman's Auxiliary

California plans to have a Woman's Auxiliary as a branch of their State Association. Mr. Weems, president, has suggested that Mrs. Krebs and Mrs. Edwards form a committee to contact cooking school instructors, teachers and commercial demonstrators to include honey in their programs. Mrs. Krebs has given a number of honey talks and demonstrations. This is the right type of work and is just one of the splendid possibilities of promotion which every state association has within its reach. Beekeepers will do well to benefit by this forward action in California.

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National Honey Week

Don't forget National Honey Week, November 7 to 12. Begin to plan now. Make it bigger and better than 1931. American Honey Institute will send you booklet, suggestions, and answer any questions you have concerning what you can do for National Honey Week.

No Use for Caucasians

After having tried three strains of Caucasians, one an importation, my judgment is the introduction of these bees is a mistake. I fail to see where there is any dependable evidence to show that Caucasians have anything to recommend them over good Italians.

Even if the advantages claimed for them are real, the way frames are glued to the front of the hives and the lower corners of the combs are plastered with the abominable stuff (whatever it is), and the burr- and brace-combs everywhere, they must show far greater superiority in every way before I will tolerate them.

E. G. Carr, New Jersey.

The Queen or Mother Bee

In "La Colmena," the Spanish bee magazine, published in Madrid, Spain, we find an article, signed by Enrique Diaz, in which he finds fault with the names of queen bee or of mother bee, saying that the queen is not a queen at all and that the term "mother bee" is sometimes not applicable. He wants the queen called "ponedora," or laying bee, since she does nothing but lay eggs. It is true that this is her sole occupation from the time she is fecundated until her death.

How Much Honey Do Beekeepers Eat?

(Continued from page 282)

and good candy is good food, but honey is far superior. When available as desired, it will satisfy the appetite for sweet and does away with nibbling at candy between meals. I have seen this demonstrated right in our own home, and in other ways, many a time."

"I have to eat honey for my health. We consume 150 pounds in our family of four. The honey glass has taken the place of the sugar bowl."

"Family of two. For 1931 my books show the home charged with 155 pounds of honey. This is the usual family use, which includes, of course, occasional guests, honey cookies for Ladies' Aid cooking sales, and such like. No gifts of honey are charged to this account, but all goes through the kitchen, by far the greater proportion eaten raw, from the original can, to the honey bowl, to the table. It is hardly necessary to add that we use very little sugar."

"I am by myself and used fifty pounds. I expect to use much more after this in honey jelly."

Even if it should turn out to be the case that this average of 55 pounds of honey yearly used by each member of a beekeeper's family is too high, we need not feel badly over it. Whatever the true figure may be, these replies show that there is a considerable body of people who do use honey instead of using so much sugar. Investigations show that, even in these hard times, honey users in the cities continue to buy honey almost as they did before. Once a family really begins to use honey, nothing else seems to take its place. Once a honey user, always a honey user, seems to be the fact. All of which tells us that what we need to do is to interest a few more people, each year, in using honey. That is, each beekeeper should get a few new customers each year.

Suppose we cut the probable practical use of honey per caput from our figure of 55 pounds to 25 pounds per year for all the people of the United States—we would have to get busy and do better beekeeping to supply the demand, which would be about fifteen times as much as we now produce. Figures are astonishing things when we come to study them. And it is easy to count chickens before they are hatched. But if we would push the use of honey as might be done, there would be no selling problem for honey. The difficulty would be to supply the demand.



Kansas Beekeeping

The state of Kansas has just issued Circular No. 10, from the Kansas Entomological Commission, on apiary inspection laws, rules and regulations, apiary inspection and care of bees. Those desiring this circular should address Dr. R. L. Parker, State Apiarist, at Manhattan, Kansas. It is a very instructive treatise on diseases of bees and the Kansas laws concerning them.

Missouri Valley Meeting

The joint meeting of beekeepers of Iowa, Kansas, Nebraska and Missouri, which was planned by the extension departments of the agricultural colleges of those states, was held at Rockport, Missouri, May 25 and 26. Dr. Haseman and Prof. Jones, of the Missouri University, were in charge.

Much interest was manifested in the equipment used by W. A. Jenkins for treatment of combs with chlorine gas. Dr. Tanquary, of the University of Minnesota, was the principal speaker and outlined the things which are necessary for success with chlorine. He stressed the fact that great care must be used to insure success in sterilizing the combs, or reinfection will occur.

A very successful banquet was held in the evening of the first day, which was followed by a program of addresses and moving pictures. The second day was given over to visits to nearby apiaries. After visiting the apiaries of Edgar Stewart, who is Missouri's most extensive beekeeper, lunch was served the visitors at his home.

Rockport is in the sweet clover district of northwest Missouri and offers better bee pasture than most of that state. From that point northward the plant increases in acreage until it assumes very large importance in the Dakotas and the prairie provinces of Canada. Most of the beekeepers in attendance at the meeting were commercial honey producers who depend upon sweet clover for their crops.

The Congress of Paris in July

We are informed that the famous writer, Maurice Maeterlink, author of "La Vie des Abeilles," will preside at the first meeting of the International Beekeepers' meeting in July, at Paris.

Bees and Flowers

The British Beekeepers' Association will hold a show in conjunction with the Royal Horticultural Society on October 25 next.

They say with very good reason that bees and flowers have need of each other. We all know that nothing is more fitting, and we praise this step. It is in the right direction.—British Bee Journal, April 28.

Old Beekeeper of Unionville, N. Y., Dies of Stings

William H. Goldsmith, of Middletown, New York, writes us of the death of John Reamer, Unionville, New York, beekeeper, whose death is attributed to bee stings. He was seventy-eight years old and more than a year ago was stung around the face and neck by bees and has been unable to speak since. Heart trouble superinduced by the poison from the bee stings is believed to have caused his death.

A little more than a year ago Mr. Reamer was hiving a swarm without any protection to his face. This time, however, the bees were angry and they swarmed about his head, stinging him in many places. His vocal chords were paralyzed and he never improved.

Utah Inspection

Bee inspectors for the various districts of Utah county are announced as follows by J. F. Wakefield, of Provo, president of the Utah State Beekeepers' association:

Rulon J. Hone, Pleasant Grove, for Pleasant Grove, American Fork, Lehi, Alpine, Highland, Cedar Fort and Fairfield; J. F. Wakefield, Provo, for Provo, Springville, Lake View, Vineyard and Orem; Fred S. Dart, Spanish Fork, for Spanish Fork, Elberta, Gashen, Santaquin, Payson, Benjamin, Lake Shore, Salem, Thistle, Genola, Mapleton.

The bee inspectors were appointed by the Utah county commission.

G. P.

Class J—An Amateur Class for Illinois State Fair

An amateur class has been created by the Illinois State Fair Board for the fair this year at Springfield with a premium of \$175.00. This is a good opportunity for younger beekeepers to make a start and show what they can do in an exhibit. For further information, write Milton E.

Jones, General Manager State Fair Grounds, Springfield, or Chief Inspector of Apiaries, A. L. Kildow, Putnam, Illinois.

Kansas Federation Meeting

The Kansas Federation of Beekeepers will be entertained by the Coffey County Beekeepers' Association, July 10, in Burlington, Kansas. The meeting is to be held in Kelley Park, one block east of Highway 75, at the south edge of the city. The program will begin at 10:30 with round table talks by prominent beekeepers and inspectors. At 11 o'clock there will be an election of officers; at 12 o'clock a basket dinner and program of music.

In the afternoon there will be out-of-town speakers, including Leo Bradford, Oregon, Missouri, president Missouri Apiary Association; Charles A. Scott, Topeka, Kansas, secretary of the entomological commission; Dr. R. L. Parker, Kansas state apiarist.

Illinois State Report

The report of the Illinois Beekeepers' Association is out. Two years are combined in one to save expense. It is a cloth-bound book with 236 pages and is sent to members of the Illinois State Beekeepers' organization whose dues are paid in full. A number of papers read at the Toronto meeting of the American Honey Producers' League are also included.

Big Summer Meeting in Michigan

The summer meeting of the Michigan Beekeepers' Association will be held at the home apiary of David Running, Filion, Michigan, August 5 and 6. Provision will be made to care for visitors. A camp site is available for all who wish to tent.

This meeting is but a few miles from Lake Huron and Saginaw Bay. Guests can combine pleasure and profit. Come and see how one of the most successful beekeepers in the United States does business. Everyone knows David Running.

Good Prizes Again at Missouri State Fair

The Apiary Department of the Missouri State Fair has added \$185 in merchandise prizes to supplement the cash awards even though the latter are reduced from last year. There are thirty-four contributors of merchandise and bees, from eleven states and England.

With a favorable season, we should have a better show than last year, and that was the finest in our history. We have two splendid judges, Miss Essie M. Heyle of Missouri University, to judge honey cookery, and Prof. Paddock of Ames, Iowa, for the men's classes. Let's give them a big workout. If practical, the

judges will make a score card for each exhibitor to show strong and weak points.

The rules are about the same as last year; the class of honey plants is omitted because the exhibitors thought the prize money should be on bees and bee products. It would be nice if someone would bring an old collection just to display to the public.

Separate score cards are made for extracted honey and the "display" of extracted honey. The small class rewards the quality of the honey and the display rewards artistic arrangement and quantity.

The "display of apiary products" will be handled the same as last year. The same display tables can be used. This was a feature of last year's show and would have been a credit to any state fair.

First prize—\$30 and 1,000 comb honey wrappers. (Value \$14.)

Second prize—\$20 and five ten-frame hives, metal covers. (Value \$11.90.)

Third prize—\$14 and ten pounds Leahy Med. Brd. Wr. Fnd. (Value \$6.16.)

Fourth prize—\$5.75 and ten pounds Leahy's plain Med. Brd. Fnd. (Value \$5.50.)

Fifth—Ribbon.

The display of extracted and comb honey has about the same prizes as last year. Judge Woodman said we should give more emphasis to comb honey.

The two small classes of extracted honey call for round jars, and the two cut comb classes call for fluted jars. This makes the classes uniform.

The awards on honey cookery were reduced some, but they are still the best on the fair grounds for our housewives. The cake classes were changed to, first, honey fruit cake; second, light honey cake; third, dark honey cake.

Special Prizes

To the man exhibiting in the most classes in the men's division—One five-year subscription to the Beekeepers' Item.

To the woman exhibiting in the most classes in the home cookery division—A set of bulletins and literature on diet, menus, health, recipes, etc., by the Department of Home Economics of Missouri University.

To the beekeeper exhibiting the most pounds of honey—First, second, third.

To the beekeeper coming the most miles to exhibit—First, second, third.

Be sure to write Secretary W. D. Smith, Sedalia, for your premium list.

If you cannot come to the fair, just box up your exhibits in straw or excelsior and ship them prepaid. We will display them the best we can and will try to sell them for you or return them to you. We usually sell

considerable honey from the apiary booth on Saturday, the last day.

Mr. Ellis Young, of Pattonsburg, Daviess County, is helping me this year. He is a live wire and knows his bees. You will like him.

Be on the lookout for further information in the bee journals and in radio broadcasts over WOS on Wednesdays and Fridays at 12:30. Write me if there is anything you do not understand. Drop a card to Secretary Smith, asking for a new premium list, and make your entries early.

Clay T. Davis,
Supt. Apiary Dept.

Report of Hamilton County (Ind.) Beekeepers' Annual Meeting

The annual meeting of the Hamilton County Beekeepers' Association of Indiana was held the last of April. Among the speakers were President A. W. Coon, Dr. C. H. Tomlinson, and James E. Starkey of the Indiana State Beekeepers' Association.

Dr. Tomlinson discussed the various uses to which he has put honey. Among the numerous ways of combining honey with medicines, the doctor stressed the importance of honey as a laxative and body builder, especially in cases of tuberculosis and typhoid fever.

Beekeepers showed more interest than in the past. The following new officials were installed:

Orin Jessup, president; Otto Kirby, vice-president; Leonard Stubbs, secretary-treasurer, 1398 Evans Avenue, Noblesville, Indiana.

Leonard Stubbs.

Is Comb Honey Healthy to Eat?

Some people have asserted that wax is indigestible. On this matter the Irish Bee Journal for August says:

"It would be unfortunate for the honey producer and the public alike if the opinion became common that beeswax in honeycomb is injurious to the digestive organs if eaten. It is not so long since a foreign beekeepers' publication declared that everyone knows that wax is indigestible, and announced that it would continue to advocate the use of extracted honey in preference to comb honey because of the difficulty of digesting wax, which must first melt in the stomach.

"But it requires 144° F. to melt wax. Any man whose stomach had arrived at that temperature would have no need for either honey or wax.

"But beeswax, if itself indigestible, is actually an aid to digestion. They cite the case of a beekeeper who had been a martyr to constipation and was not relieved by extracted honey, but found an absolute remedy when he changed over to comb honey as a regular article of diet."

SELECT UNTESTED QUEENS

10 QUEENS or more
30c each

3 Queens for \$1.00; 1 or 2 Queens, 35c ea

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"Please forward me three selected untested queens right now. . . I am Mr. George Coddington's helper and we have a yard of your bees. They are very gentle." (Signed) Yours very truly,

B. L. Davidson,
 1401 Fairmont Ave.,
 Middletown, Ohio.

"Those queens of yours I ordered for Mr. Summe some time ago are sure good. Mr. Summe is so well pleased with them I am ordering another."

(Signed) J. E. Brown,
 County Bee Inspector,
 Greentown, Ind.

Health certificate with each shipment

Prompt service, safe delivery,
 satisfaction guaranteed.

"St. Romain's Honey Girl"
Apiaries

Hamburg, Louisiana

Did you ever buy
CHEAP QUEENS
that were failures?

Queens of low vitality are high at any price—pay a few cents more and be sure.

Untested queens 40c each; 25 or more, 35c each. Only three-band Italians reared. Usual guarantee in U. S. and Canada.

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PORTER
BEE ESCAPE
 Saves Honey,
 Time, Money

R. & E.C. PORTER, Mfgs., Lowistown, Ill.
 (Mention American Bee Journal when writing)

Caucasian Bees
and Queens for July

"For mountain bees that's gray,
 Send your orders this a - way."

Our queens are guaranteed purely mated and to be genuine in every way. Untested queens 50c each, any number; tested, each \$1.50; select tested, each \$2.50. 2-lb. pkgs. with untested queens, 1 to 4 at \$3.50; 5 to 9 at \$3.25; larger size add 75c per lb. No disease and safe arrival guaranteed. We solicit your orders on the basis of quality and service.

Bolling Bee Co., Bolling, Ala.

Do Bees Help Pollinate Corn?

By Alfred H. Pering
 Florida

AFTER reading that paragraph on page 464, October, "Grains Pollinated by the Wind," in which Mr. Johnson says bees do not help pollinate corn, or wheat, or barley, I was strongly prompted to relate a bit of experience. I do not want to get into an argument or take exception to what someone else says, but here is the experience:

Years ago, when I was just a boy on an Indiana farm, my father, who made a specialty of producing a fine variety of white corn for grinding into meal, was intensely interested in breeding and improving a grade that would demand an extra price for seed. He succeeded to such an extent that neighbors and farmers from what was quite a long distance in those days came to him regularly for this particular variety of white corn for seed.

I was quite young as a beginner with bees and there were few colonies for the first years. They winter killed and the building up of the apiary was slow. By and by, better protection was provided and increase became more rapid.

In the meantime there came a year when there was a very great calm in the weather, just at corn tasseling time. My father was very much concerned, and after a few days and nights of almost no motion of the wind, he led old Vick, the family mare, out of the barn; put collar and buggy hames on her; stuck the forward shaft ends through the hame holes where the driving lines should have been; placed a broad backband across her hips, fastened to support the rear end of the buggy shafts minus the buggy and singletree; put on a riding bridle; threw a thick, woolly, sheep skin across her back and boosted "ye writer" astride, bidding me ride old Vick up and down between every other row of the choice white tasseling corn.

I did so. The buggy shafts struck the stalks, shaking off the ripe pollen. My older sister said she could see from the parlor window just where old Vick and I were, from the cloud of dust. My father stood on the front steps of the house and viewed the movement of horse and boy with much satisfaction, although neither could see us, as the corn was very tall.

A neighbor, of partial Irish descent, took note of the movement and walked into the cornfield to investigate. Upon being accosted, I could give no satisfactory explanation to him; I was just having a fine, late June horseback ride.

The neighbor went on to our house. Upon being told the purpose of this

unusual method of cultivating corn, he made all sorts of fun of the idea, and, after much laughing and banter, they wagered some trifling bet on the results, since this neighbor's cornfield was adjoining, only a rail fence separating the two.

The land was a creek bottom, all as near alike as could be. Seed exactly alike, planted in like manner, at almost the same time, and cultivated the same number of times.

At corn gathering time, each measured off, as nearly as could be done, one acre of each of the two fields. The corn was husked early and compared by measuring and counting the ears, nubbins and all. There was no perceptible difference. The neighbor had the laugh on my father and the bet was paid.

By and by, as cold weather came, the corn became drier and a new bet with larger stakes was made. A new acre each measured off, corn husked, shelled and weighed. Believe it or not, my father won by a twenty-bushel majority. The neighbor's corn was chaffy, cobs large, many of them crooked at the small end, black and smutty on the convex side, which bore no grain at all, butts large and many of them hollow.

The neighbor not being satisfied, a third test was taken and my father again won by an addition of five and one-half pounds over the previous test.

Well, what has all this to do with bees? During the following years the apiary was increased. When the home yard reached eighty colonies, the number of bees working corn pollen was noticeable. My father would pass up and down the rows watching. My attention was often called by him to the pollen dust shaken loose by the movement of the bees and light clouds floating in the still air, a sufficient portion falling upon the silks to make the use of old Vick and "ye small boy" unnecessary.

So maybe bees do not help pollinate corn in Wisconsin, and perhaps not in Nebraska, but I think they surely do in Indiana. Down here in Florida my bees gather so much corn pollen from the gardens that I find it desirable to remove much of it from the brood combs.

Can You Answer This?

Harold R. Saupe, of Iowa, asks, "What share basis shall I adopt for the care of my seventy colonies of bees?" C. P. Dadant, our editor-in-chief, answers, "One-half the crop and one-half the expenses or a straight salary." What do you think?

Naturopaths Use "Nature's Sweet"

The souvenir program of the thirty-fifth annual convention of the American Naturopathic Association giving the program at the New Pfister Hotel, Milwaukee, November 26-28, contains many interesting facts about this great association.

Of particular interest to beekeepers is the recommendation taken from the Riese Sanitarium Health News, La Crosse, Wisconsin, about "Nature's Sweet." This advises the use of honey as a health food and a natural food direct from the laboratories of nature.

To bring out the fresh flavor of vegetables, a teaspoonful of clover honey to a cup of vegetables before adding butter or salt or just before serving is advised. This makes an improvement in the flavor.

For sweetening fruit drinks, ice tea or coffee, honey is advised. About two tablespoonfuls in a glass, add warm water and mix thoroughly. When preparing iced drinks, mix the honey with the drink before putting in the ice.

A cinnamon toast is given: Mix honey and cinnamon to suit taste or add a little of any kind of nuts or fruit to suit. Toast the bread, butter it, and add the honey paste. A delicious breakfast food.

Marketing Honey in Paper Cups

By J. W. Powell
New Mexico

J. W. Caldwell, of New Mexico, has tried putting honey in small paper cups with a good tight lid fitting into a groove. He got a mayonnaise dealer in El Paso to handle it for him. You would be surprised at the amount of honey that is being sold in this little cup that retails for a dime.

I think if we could get such a plan started, we would consume more honey than we now do every year. There are many people who will pay a dime for a half- or three-quarter pound of honey and keep repeating it, but would never buy a pint jar.

[We have some of the paper cups. They look good for local sales, but might not stand distant shipping. They will hold from half a pound to a pound and can be bought with any decoration desired or may carry a label.—Editor.]

New Bee Bulletin

"Bees and Their Care" is the title of a new bulletin by Dr. J. A. Munro, of the North Dakota College of Agriculture. It is very elementary, giving the information which the beginner should have. All descriptions are necessarily brief, but the essential operations relating to beekeeping are included. Those interested should write to the college at Fargo, North Dakota, for copies.



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THREE-BANDED ITALIAN QUEENS**

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1 Queen, 40c

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BEES PILE UP EXTRA SUPERS OF HONEY

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We can make quick delivery on large or small orders and our price on **THRIFTY** untested queens is

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The same good quality. Noted for their gentleness and honey gathering. One, 65c each; six, \$3.00; twelve, \$5.50. Satisfaction guaranteed in U. S. and Canada. Your orders appreciated.

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Honey or Queens—Without Swarming

By E. S. Miller
Indiana

IN January "Gleanings" Mr. C. A. Wood writes, under the heading, "Forced Supersedure Stops All Swarming," and in January American Bee Journal Mr. Corkins tells of the Rauffuss plan of "Queen-Rearing for the Commercial Beekeeper."

The two methods are similar in most respects. Mr. Wood's objective, primarily, is the production of comb honey with swarming eliminated, and secondly, the rearing of good queens. Mr. Corkins stresses the rearing of better queens without swarming, the production of honey being incidental. Both amount to the same.

Both start with strong colonies and with brood in two hive bodies. Both insert between these two brood chambers one or more extracting supers, a queen excluder and a board with a restricted opening, the latter to retard but not to prevent entirely the passage of bees. Mr. Corkins would have an external opening in the top story, probably to prevent smothering in warm weather.

With the queen in the top, Mr. Wood gives the lower brood chamber one or more queen-cells, grafted twenty-four hours previously. The board, top story and supers with the old queen are removed after the young queen begins to lay and are replaced with comb supers. Mr. Corkins waits eight days, removes the brood chamber containing the old queen and places at the top a prepared super with brood, honey and queen-cells in each of three separate compartments, each compartment with an opening to permit flight. Mr. Wood mates his queens from the lower story, Mr. Corkins from the top of the hive. Both are the same "in principle."

In either mode of procedure the young queen does not emerge until all worker brood is capped, which is a point in its favor, for a virgin in a strong colony with unsealed brood nearly always will disappear, often with a swarm.

What are the advantages and disadvantages of the practice outlined above over the ordinary mode of mating queens in separate nuclei? The advantages may be summed up as follows:

1. Owing to the warmth afforded by the full colony, queens may be reared somewhat earlier in the season.
2. Queens are reared in queen-right colonies, thus holding together a strong force of bees for greater honey production.
3. Mating and introduction are accomplished in the same operation. The apparent disadvantages are:

1. The method is more complicated and requires a greater amount of labor.

2. It doesn't always work out successfully. With weather and other conditions favorable, it will succeed in a majority of cases, but ordinarily there will be a large percentage of failures.

3. If queen-cells are developed in a colony with a considerable amount of unsealed brood, they will not be as well fed, and therefore could not be expected to develop as good queens.

In both plans outlined above I have omitted details. It is, of course, understood that superfluous queen-cells are removed, that queens are reared only from the best stock obtainable, and that in removing the old queen and hive parts most of the worker bees are shaken off or other means taken to strengthen the parent colony.

New Nature Book

J. W. Winson, the well known British Columbia naturalist and beekeeper, has written a delightful little book of nature sketches. Under the name "Wildwood," Winson conducts a nature column in a Vancouver daily paper. Here he gives his readers a daily glimpse of the activities of the creatures of the wild. Under the title of "Weather and Wings," the new book contains a great variety of things: clouds, snow, ferns, thorns, flowers, insects, birds, eels, lizards, and weasels. Bees are included, of course, for no beekeeper could be expected to write a book without something about bees. The variety is as great as the variety one finds when spending a summer day in the country.

The book is published by Thomas Nelson & Sons, Toronto, Canada.

Some Causes of Honey Fermentation

(Continued from page 281)

present in the nectar of flowers, on the bees, and in the soil. They are especially abundant in the soil where bees have been kept for some time.

Every precaution should be taken to keep the extracting room, machinery and utensils used in extracting honey clean, since they may be a source of contamination.

Honey may be preserved by heat, cold, and chemical preservatives. Honey may be preserved by heat at 100 degrees F. for several months or 122 degrees F. for twenty-four hours, 145 degrees F. for thirty minutes, brought to a temperature of 160 de-

degrees F. or 170 degrees F. for thirty minutes. Heat prevents fermentation and retards crystallization, but darkens the honey and destroys the enzymes.

The enzyme content is important in honeys for export, since this is one of the tests used by certain countries to determine its quality. Honey may be preserved by storing at a temperature of below 52 degrees F., since the yeasts causing fermentation do not grow below this temperature.

Chemical preservatives such as sodium benzoate, sodium sulphite and sodium bisulphite may be used if the laws in the countries in which they are to be used are observed. Crystallized honey may, under certain conditions, ferment more readily than uncrystallized honey.

Doings in the Northwest

(Continued from page 281)

building and in the large parking area provided for the convenience of customers. Upon being notified of the excitement, Mr. Smith rushed to the scene of the disturbance and soon dampened the ardor of the bees with a spray from the hose.

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Honey Still High

Pacific Northwest beekeepers are deriving some satisfaction from the fact that honey has not felt the effects of the depression to quite the extent of many other agricultural commodities. Oregon strawberries were retailing in Northwest markets at 65 cents per crate of twenty-four pint boxes on June 4. In the same markets honey was selling at from 35 to 40 cents per five-pound pail. Optimistic beekeepers feel that there is no reason why everyone should not have his fill of strawberries and cream sweetened with honey this season. They hope that the taste, once developed, should linger until such time as both strawberries and honey command a price more nearly in line with the cost of production of these delicious commodities.

Attractive New Labels for the New Hazel-Atlas Bee Hive Jars


Ask for samples and prices. Sized to fit the three jars. See ad on next page for this brand new honey jar design.

You will like them, and our labels for them are just right in size and colors.

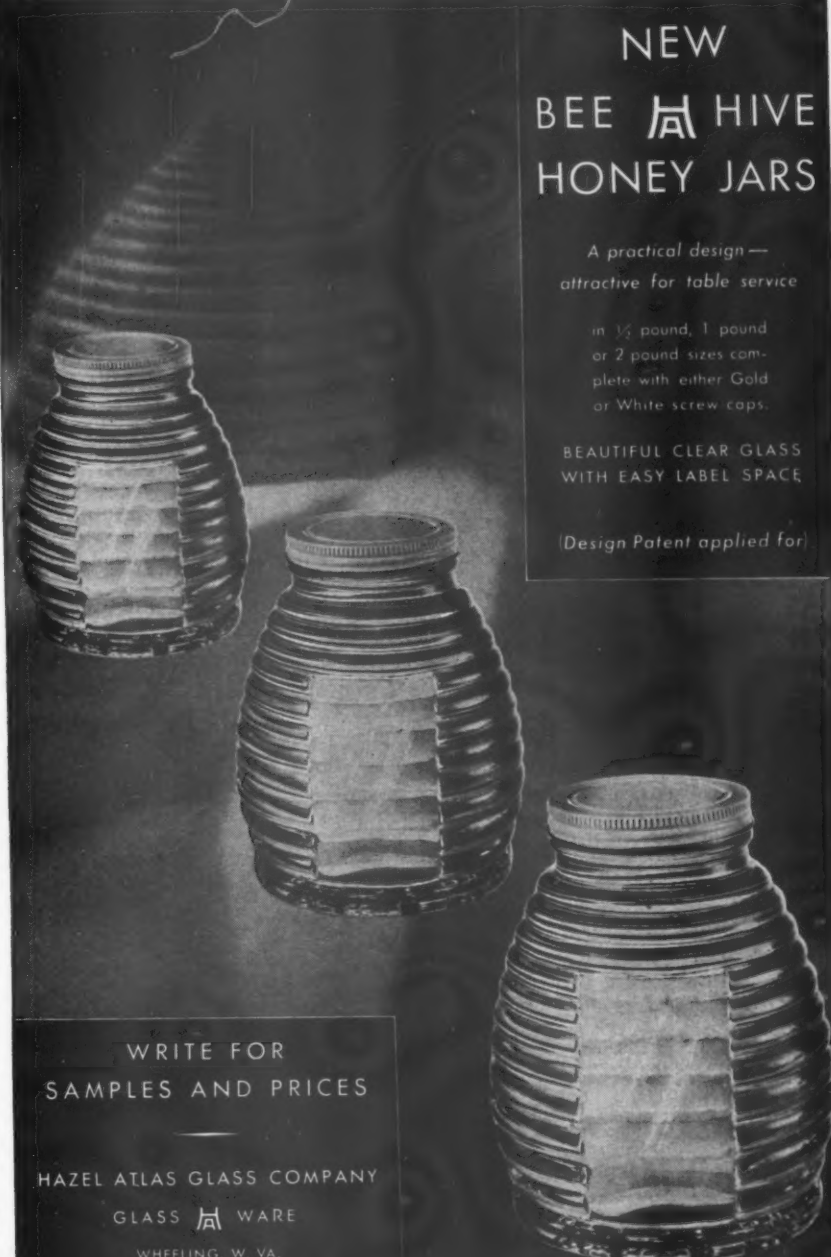
Write us for label samples. A full line of labels in our sample catalogue for all kinds of honey jars and pails. Write

American Bee Journal
Hamilton, Illinois

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A practical design —
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in 1/2 pound, 1 pound
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BEAUTIFUL CLEAR GLASS
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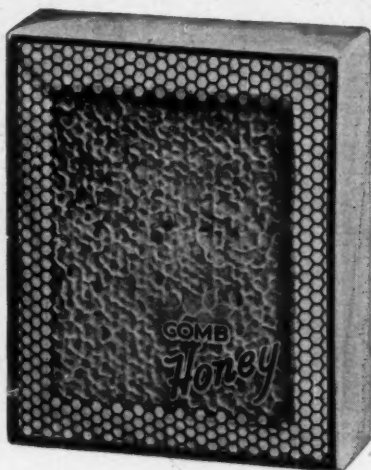
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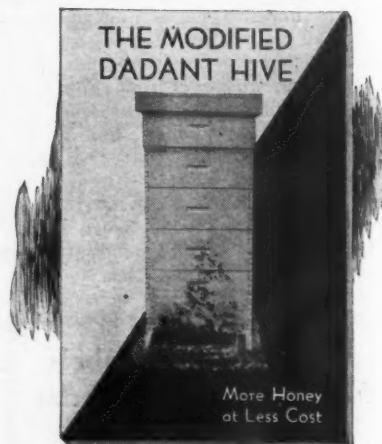
We breed only from stock that has been thoroughly tried for honey production and wintering in the North. You need not requeen every year when using them, because of their long life. They are the most gentle honeybee.

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We guarantee safe arrival and satisfaction. Our Caucasians are rustlers.
Prices: One to six, 75c each; six or more, 60c each; one hundred or more, 50c each.
RUSSELL-BARNES APIARIES, Box 5, MORRILL, NEBRASKA

AN EASILY MANAGED HOME FOR YOUR BEES

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More Honey
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A good hive has all the room the queen needs and also room for food and young. Often over 100,000 cells are needed at one time. No hive but the Modified Dadant gives this room in one compact body. It produces big colonies and big crops.

Send for this 16-page booklet telling how the Modified Dadant Hive is used by successful honey producers.

DADANT & SONS, HAMILTON, ILLINOIS

Crop and Market Report

Compiled by M. G. Dadant

For our July issue Crop and Market page, we asked reporters to answer the following questions:

1. In what condition are bees?
2. How are the honey plants?
3. How is the crop so far?
4. Prospects for balance of season?
5. Much old honey to carry over?

Condition of Bees

In practically all sections, condition of bees is satisfactory except in Florida and Georgia, where the effects of the drought and the early freeze still have their effects upon bees.

In some sections of the intermountain territory, the heavy losses of bees and gradual weakening of colonies have tended to retard the condition of all.

There have been an unusual number of complaints concerning package bees received this year in that the queens have in too many instances become drone layers and thus the packages have dwindled rather than increased. In other words, package bees in many instances have not come up this year as they ordinarily should have.

In scattered sections, also, the early honeyflow has not been sufficient to stimulate the bees to satisfactory brood rearing, and for this reason they have dwindled rather than going forward until the crop.

Honey Plant Conditions

We hear a few complaints of too dry weather, although the drought has been in practically all instances broken within the last two weeks. However, in many instances too late to affect the condition of honey plants for this year. New York at last report still had dry weather. Some other sections of the Atlantic Coast region were also reporting the same conditions, and Georgia and Florida up until recently have had continued unbroken drought, which put plants in a terrible condition as well as the bees and held down any possibility of a surplus honeyflow.

In eastern Iowa the plants do not seem to be up to their usual condition. The same is reported in Arizona and New Mexico.

White clover in the extreme northern areas also is badly damaged by early drought. This is particularly true of Minnesota, Wisconsin and Ontario, where the possibilities of a white clover flow are not good, but such areas as have sweet clover look very promising, indeed.

Honey Crop

I believe it is too early yet to give much report upon the honey crop. The earlier stimulating flows have in most instances been very satisfactory, particularly from willow and the dandelions. Nebraska reports a surplus stored from these sources, the first in many years. Georgia and Florida have had a woeful failure in the honey crop in the tupelo region, the first time in many years, as there was no tupelo honey at all. As a consequence, tupelo prices have gone up. Louisiana reports only about 50 per cent of a crop, and in Texas the crop has been disappointing. The same is more or less true of New Mexico and Arizona.

In California the orange crop was satisfactory, but perhaps not a great deal larger than last year. Many had moved to the sage and some even moved back to the orange. Sage crop, however, is very satisfactory and in all instances the honey secured in California is of a much lighter color than in 1931. All in all, we cannot see that the earlier crops are as satisfactory as a year ago, owing to the fact that the entire South in many instances has no crop at all or only a mediocre average one. California seems to be faring better than last year, which probably might bring the average up almost to the 1931 crop for the southern half of the country.

Crop Prospects

Since our last report was written, we believe that the crop prospects have increased materially for a good honeyflow. This is due to the fact that copious rains have fallen practically over the entire country and have revived the possibility of clovers and other plants coming into satisfactory yield. This is particularly true in the white clover region, although conditions are still spotted owing to the fact that many sections did not have any plants to begin with, and the rains have only served to bring up the new clover, which will not, of course, bloom until next year. Even the southeast section of the country, which has been so badly hit, is now having rains, which may give some little late honey, but not sufficient to enter into any of the general markets.

The eastern half of the clover belt seems to have better prospects than the western half. In eastern Iowa conditions are not good, particularly because there is not a great amount of sweet clover, whereas in western Iowa it looks like a booming crop this year if the weather is satisfactory from now on. The plains states all seem to be anticipating crop conditions better than a year ago. This is particularly true of Nebraska, South Dakota, and North Dakota. In the intermountain area it is yet too early, but we hear some complaint of too much rain. However, if the weather breaks satisfactory, the heavy rains will undoubtedly have the result of stimulating sweet clover growth and make for a more satisfactory crop than has been obtained with the extremely dry weather of the past two years.

All in all, we anticipate a honey crop much superior to last year, but not as great in proportion as had been at first anticipated, largely because of the unsatisfactory yield in the entire south territory, beginning with Maryland and Virginia and extending all over the Southeast into the Southwest. Texas, of course, still has time to harvest some later honeys, and conditions seem to be very satisfactory there.

In the Canadian provinces, the eastern provinces were hard hit by the drought last year and do not anticipate as heavy flow as is ordinary. The opposite is just as true in the western provinces, where sweet clover has come up abundantly and prospects look very fine, indeed.

Honey on Hand

The writer was surprised at the reports coming in as to the amount of honey left on hand. With very few exceptions, there was a very little amount of honey left on hand going into the new crop year. This was chiefly in the states of Pennsylvania, Virginia, the Carolinas, Georgia, Florida, and the extreme northwest Washington and Oregon. Other reports were scattered and were of honey held by individual beekeepers who had not seemed able to secure a market. As a general rule, there did not seem to be more than 5 per cent to 10 per cent of the honey left on hand, and in a large number of instances no honey in sight at all and demand for the new crop.

All in all, we believe that the honey market is just about as bare of honey as it has been in many years, even though late sales of honey have been at extremely low figures.

This is shown particularly by the fact that orange honey is being offered and sold at prices ranging from 4 to 5 cents per pound f. o. b. California shipping point. This does not bode well for the prices on sweet clover and white clover honey later on, as orange usually commands from 1 to 2 cents more than the ordinary white honey. However, as a brightening influence, we would mention the fact that the fruit crop throughout the entire country, and particularly through the Central West, is very much less than it was a year ago. In fact, there is a scarcity of the fruits except berries, and such a scarcity always makes for a demand for honey.

We Are Cash Buyers of Honey and Beeswax
Submit samples, and best prices, freight prepaid
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Buy and Sell All Grades Extracted Honey
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The BEEKEEPER'S EXCHANGE

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

Rates of advertising in this classified department are seven cents per word, including name and address. Minimum ad, ten words.

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

BEEES AND QUEENS

MIDDLE TENNESSEE APIARIES—Italian queens, 60c each. Joe B. Tate, 1029 Lischey Ave., Nashville, Tenn.

BUY the good comb package built on standard frames and drawn from Dadant's wired foundation. Two pounds, two combs and young queen introduced for \$3.75. Jes Dalton, Kenner, La.

MR. BEEKEEPER—Write and get my prices on bees and queens. A postal card will bring it. Lowest prices possible, quality of the best, full weight of good young bees, queens as good as the best. Safe delivery guaranteed. Our losses average less than 2 per cent; made good at once. Promptness of service. O. P. Hendrix, West Point, Miss.

CHOICE bright Italian queens that are a pleasure to work with and be proud to own. Requeen with stock that has been bred and selected in the North the past 29 years for good winterers, hustlers, gentleness and fine color. One queen, \$1.00; two or more, 90c each; \$9.00 dozen. Breeders, \$10.00 each. Emil W. Gutekunst, Colden, N. Y.

GOLDEN ITALIANS—The same kind I have sold for many years with no complaint. Untested, each, \$1.00; \$9.00 per dozen; six, \$5.00. Tested, \$1.50 each. Breeders, the best, \$5.00 each. J. B. Brockwell, Barnetts, Virginia.

MY cut price on golden Italian queens as good as the best, with health certificate, satisfaction guaranteed: Untested, 70c; six, \$3.90; twelve or more, 60c each. Tested, \$1.00. Select tested, \$1.50. D. T. Gaster, Randleman, N. C., R. 2.

GOLDEN Italian queens—ones that will produce nice, yellow bees. The word Golden just means better bred Italians. I guarantee my queens to produce workers that will bring in the honey and other qualities surpassed by none. Price, 50c each; 13 to 50, 40c each; 100, \$35.00. Health certificate with each package. E. F. Day, Honoraville, Ala.

FOR SALE—Italian queens, 35c each, or three for \$1.00. Red clover queens. Graydon Bros., Greenville, Ala., R. 4.

WRITE for our special prices on our golden Italian queens. Sam Hinshaw & Son, Randleman, N. C.

THREE-BANDED Italian queens. One, 60c; six, \$3.25; ten, \$5.00; twelve or more, 40c each. Will exchange queens for bee supplies, gun, poultry. Riverside Apiaries, Randleman, N. C.

ITALIAN queens, choice stock, 40c each. Will trade for white honey, beeswax. Homer W. Richard, 1411 Champnolle, El Dorado, Ark.

GRAY CAUCASIAN queens, July 1 to October 1: One, 50c; ten, \$4.50; eleven to one hundred, 40c each. Safe arrival and satisfaction guaranteed. Tillery Bros., R. 6, Greenville, Ala.

HARDY northern queens, Michigan raised, three-banded Italians. Thirty-six years' experience with bees; twenty-one years' experience in raising queens. Years of selections. Will C. O. D. one queen 50c. One dozen, \$5.40; fifty, \$20.00. N. J. Smith, Coopersville, Mich.

ITALIAN bees and queens. Untested queens 40c each; tested, 80c each. Also two-pound packages with queens. Let us know your needs. Ernest W. Peterson, Sandwich, Ill.

THREE good Italian queens for your \$1.00. D. W. Howell, Shellman, Ga.

EVERYBODY knows a price that is too low on anything, including queenbees, is sure to have its effect on quality if continued. Extra yellow Italians priced low considering quality offered: 1 to 11, 70c each; 12 to 23, 60c each; 24 to 35, 50c each; over 35, 45c each. Tested, \$1.25. Health certificate and satisfaction insured. Ask for circular. Hazel V. Bonkemeyer, R. 2, Randleman, N. C.

CARNIOLAN and yellow Italian queens. Tested 75c, and untested 50c each. Package bees cheap. Write for prices. C. B. Bankston, Buffalo, Texas.

TRY Ruschill's State Fair blue ribbon winning Iobred Italian queens. Select untested, 60c; ten or more, 50c each. Charles L. Ruschill, Colfax, Iowa.

CAUCASIAN queens from my northern bred acclimated stock will gather a crop if there is one. None better. Try them out at these prices: two for \$1.50; 100, 60c each, for July and August. Bird's Apiaries, Odebolt, Iowa.

REACROFT quality Italian queens. One, 60c; five, \$2.50. Satisfaction guaranteed. F. D. Ellenberger, Reynoldsville, Pa.

CAROLINA QUEENS—Line bred three-banded Italians, hardy and prolific, with health certificate. Safe arrival and satisfaction insured. One to ten, 30c each; ten or more, 25c each. Carolina Bee Company, Kenansville, N. C.

REQUEEN now for safe wintering and a big crop in 1933. Buy the best; it pays. Accredited and certified by the State Department of Agriculture. Untested, 40c each; three for \$1.00. Write for circular and complete price list. J. M. Cutts & Sons, R. 1, Montgomery, Ala.

DIEMER'S three-banded Italian queens 50c each. A discount on large orders. Yards state inspected. I send them to you quick. None better, and a lot of others not so good. J. F. Diemer, Liberty, Mo.

GOLDEN queens, yellow to tip: Untested, 50c; tested, \$1.00. Satisfaction guaranteed. H. G. Karns, Green Bay, Va.

GOLDEN Italian queens, good honey getters and gentle, 40c each; \$4.00 per dozen. A. M. Kelley, Bell, Fla.

HONEY FOR SALE

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

HONEY—We sell the best. Comb in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. Tell us what you can use for prices. A. I. Root Company of Chicago, 224-230 West Huron St., Chicago, Ill.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

WHITE clover extracted honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

HONEY FOR SALE—Keep your customers supplied with honey. We can furnish white and light amber honey at attractive prices. Packed in 60-lb., 10-lb. or 5-lb. tins. Dadant & Sons, Hamilton, Ill.

WHITE COMB HONEY—Extracted and chunk. Prices on request. One-pound sample, 15c. F. W. Summerfield, Grand Rapids, Ohio.

PALMETTO or amber honey in barrels. Peter W. Sowinski, Fort Pierce, Fla.

FREIGHT paid on our complete line of the world's greatest health sweets and reduced prices for July only. Honey, maple syrup, honey maple table syrup, maple candy and cream. Write today for free samples and new circulars. Griswold Honey Co., Madison, Ohio.

NEW white clover honey, comb and extracted, ready to ship July 15. F. J. Smith, Castalia, Ohio.

HOWDY'S HONEY—White extracted and comb. New crop from central and northern Michigan. Howard Potter, Jr., Ithaca, Mich.

FOR SALE—Comb and extracted. H. G. Quirin, Bellevue, Ohio.

HONEY AND BEESWAX WANTED

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walhut St., Cincinnati, Ohio.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, 816 Hazel St., Birmingham, Mich.

WANTED—Car lots honey; also beeswax, any quantity. Mail samples, state quantity and price. Hamilton, Wallace & Bryant, Los Angeles.

WANTED—Old combs and cappings for rendering. We get all the wax, charging but 4c per pound for rendering. High cash paid for wax. Ohmert Honey Company, Dubuque, Iowa.

FOR SALE

24 COLONIES Italian bees, Modified Dadant hives, with crop. Edwin Wagner, Bellevue, Iowa.

FOR SALE—One good five-room house, 28 acres good land, 12 acres in farm; good fence; 14 acres in pasture; good timber, one good fish pond, good spring water, 55 colonies bees in Hoffman frames. Seven miles south of Bogalusa, La., on concrete highway No. 7, it extends from highway. Reason for selling is old age. R. Ritchie, Sr., Bogalusa, La.

FOR SALE—250 stands of bees, state inspected; 600 new supers. Kuster, Wheatland, Wyo.

SUPPLIES

SAFIN queen introduction cage, one, 25c; five for \$1.00. Allen Latham, Norwichtown, Conn.

FOR SALE—Queen mailing cages. Material, workmanship and service all guaranteed. Write for quantity prices. Hamilton Bee Supply Co., Almont, Mich.

FOR SALE—Used 60-lb. cans and cases. Charles Kohr, 9245 S. Western Ave., Chicago, Ill.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

USED five-gallon cans and cases for sale cheap, or will exchange for honey. Sherman Whitney, Puyallup, Wash.

FOR SALE — We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

BARGAIN LIST—Every item in good, usable condition. Priced to sell quickly. Reason for selling, no longer listed in our catalog. Brushes, cartons, glass jars, lithographed pails, smokers, veils, box seats, feeders, section presses, shipping cases, foundation, queen cages, etc. Write for free list. G. B. Lewis Company, Watertown, Wis.

MISCELLANEOUS

PLANS FOR POULTRY HOUSES — All styles; 150 illustrations. Tells you the type to build for your particular locality. Secret of getting winter eggs, and copy of "Inland." Send 25c. Inland Poultry Journal, 523 Holliday Bldg., Indianapolis, Ind.

MARBLEBOARD BINDER—For back copies of the American Bee Journal. Will hold two years. Keeps your magazines in shape for ready reference. Price only 75c, postpaid. American Bee Journal, Hamilton, Ill.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list. American Bee Journal, Hamilton, Ill.

A New Bee Book

"Manual of Beekeeping" is the title of a new book by E. B. Wedmore, published in London by Edward Arnold & Co. and in this country by Longmans, Green & Co., of New York.

It is a volume of 413 pages with illustrations. Mr. Wedmore follows the American system more closely than any English author whose work has recently appeared. He has undertaken a big job, however, in endeavoring to write a textbook suitable for any English-speaking beekeeper, "be he north or south of the equator; in warm, cold, wild or cultivated regions; whether he be keeping bees for a living or as a hobby."

The book contains a large amount of useful information and on the whole is to be commended. The author seems to be familiar with the beekeeping literature of a wide field and has made well chosen selections. The price is \$5.00.



Queen Breeders of Alabama ... to the Rescue

For the past month, American Honey Institute has been doing everything in its power to find a way to send its secretary to the important gathering of home economic people to be held at Atlanta, Georgia, June 20 to 25. On Tuesday, June 14, the Institute had to give up and decide that, for the first time in four consecutive years, it could NOT have its honey specialist on the job to talk honey, demonstrate uses of honey, and develop contacts that covered the country.

And then a miracle was performed. On the afternoon of June 14, the mail man brought a registered letter containing Ninety-eight Dollars (\$98.00) and saved the situation, and all made possible because Thomas Atchison and W. D. Short got the queen breeders to think alike and act together.

Here's a list of these Alabama boosters:

W. D. Achord, Fitzpatrick	\$25.00
Hayneville Apiary Co., Hayneville	10.00
Jasper Knight, Hayneville	10.00
W. J. Forehand, Ft. Deposit	10.00
Bolling Bee Company, Bolling	10.00
N. B. Smith & Co., Calhoun	5.00
Citronelle Bee Company, Citronelle	10.00
David Running, Sumterville	10.00
J. M. Cutts & Sons, Montgomery	5.00
Crenshaw County Apiaries, Rutledge	3.00

Let the example of the Alabama queen breeders be a stimulus to all beekeepers—Act through your county groups, state groups, or district groups. Next month the Honor Roll, revised to date, will appear according to support given by states.

Where Will Your State Stand?

Note the new address of American Honey Institute:

AMERICAN HONEY INSTITUTE
417 NORTH FEW STREET
MADISON, WISCONSIN

THIS SPACE DONATED BY DADANT & SONS, HAMILTON, ILLINOIS

Jensen's Queens ^{25c each} in lots of 25 or more

Smaller lots 30c each

"The Cream of the Crop" now being produced.

Main honeyflow makes conditions ideal for best results at least expense.

Our volume has been enlarged, so we hope to make "Right-Now-Service" available again. If you have been disappointed previously, give us another trial.

Canadian customers please include exchange.

Capacity 200 queens per day. Satisfaction guaranteed.

JENSEN'S APIARIES :: Crawford, Mississippi

Beekeepers Take Notice

For thirty years we have specialized in the manufacture of **Sections** from the whitest selected Wisconsin basswood.

We also manufacture hives, supers, frames and shipping cases.

Write for our free illustrated catalog.

Marshfield Manufacturing Company
Marshfield, Wisconsin

Mention the American Bee Journal When Writing Advertisers

Caucasians 60c—in quantity

at Today's
Prices

Start now to try these gentle bees. You will be surprised at the difference and the added pleasure. Our breeders are Pure Mountain Grey Bees—Right from the Caucasus.

REDUCED PRICES ON QUEENS

1-5, 75c each; 6, \$4.00; 12, \$7.50; 50 or more, 60c each.

Free descriptive circular about these wonderful bees — Send for copy.

Caucasian Bee Company . . . Repton, Alabama

Read This for Profit —

3-BANDED ITALIAN QUEENS

They will answer your requirements. We feel that we can make this assertion with safety, as they have been shipped to every state and province in U. S. A. and Canada. Can furnish address of dozens of satisfied customers anywhere in above mentioned territory.

Can give 24-hour service when so desired. If we fail to do so, will return your money if you wish.

Better yet, they are 25 cents each. **SHAW & HOMAN, Shannon, Miss.**

An adequate supply of Dadant's Crimp-Wired Foundation will assure you fine combs this season. You are doubly protected, too, when you know it is made of pure beeswax.
DADANT & SONS, Manufacturers, HAMILTON, ILL.



Moore's Strain

Leather Colored Italian Queens
SUPERIOR STOCK

50c Each

World-wide reputation for honey gathering, hardiness, gentleness, etc., since 1879. Safe arrival and satisfaction guaranteed.

J. P. Moore

Morgan . . . Kentucky

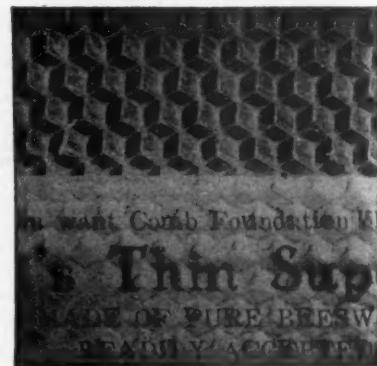
Bright Golden Italians

Those beautiful gentle yellow bees that satisfy and please all beekeepers that have tried them.

Quality unchanged, but depression prices are: Single queen, six bits (75c); two or more, only four bits (50c) each.

Stevenson's Apiaries, Westwego, La.

When Writing Advertisers Mention The American Bee Journal



That Chewy Center calls the Customer back !

DADANT'S SURPLUS FOUNDATION

YANCEY HUSTLER QUEENS

THREE-BAND

\$30.00 per 100; \$4.00 per doz.; 40c each.

Quick service and satisfaction guaranteed

Caney Valley Apiaries :: Bay City, Texas

Queens 25c Each

Three-band Italians

1 - 5, 28c ea.; 5 - 100, 25c ea.

No Disease. Satisfaction Guaranteed.

C. G. Ellison, Belton, S. C.

Latham's Queens
 "She-Suits-me" Queens
 are line-bred three-banded
 Italians

This strain of Italians is unsur-
 passed in tongue-length and also
 in nectar gathering

1 untested laying Queen 80 cents
 6 for \$4 50 for \$31

Allen Latham
 Norwichtown
 Conn.

Season Mages-haw!

**Berry's Reliable 3-Banded
 Italian Queens at Lowest
 "Repression" Prices**

ONE FOR 50c, THREE FOR \$1.00, AND \$30.00 PER HUNDRED

Pure mating, safe arrival and entire satisfaction in every way we guarantee.
 No disease; a certificate of health accompanies all shipments. Wings clipped
 free of charge on request.

M. C. BERRY & CO., Box 697, Montgomery, Alabama
 38 Years Breeding the Best

**GET RUNNING'S AND GET
 QUEENS—THEY SATISFY**

The kind WE use in our extensive Mich-
 igan Apiaries where WE produce honey
 by the carload.

All Italian stock. Accredited & certi-
 fied by Alabama Dept. of Agriculture

Choice untested queens, 50c each. 10 or
 more, 40c each. Tested, 50c each extra.

Address for quick service—
David Running Apiaries
 Sumterville, Alabama
 Telegraph Station, Epes, Alabama.

York's Bees and Queens They Cost No More—
 Everything Considered

SUMMER PRICES:

2-lb. pkgs. Italian bees with queens, \$2.00 each; any number.
 3-lb. pkgs. Italian bees with queens, \$2.50 each; any number.
 Young laying Italian queens, 40 cents each; any number.

Safe arrival and complete satisfaction guaranteed. Your rush orders
 will be appreciated and handled satisfactorily for you.

A complete stock of Lewis Beeware and Dadant's Foundation
 at Catalog Prices.

YORK BEE COMPANY The Universal Apiaries **Jesup, Georgia**
 (The Home of Quality Products)

CAUCASIANS

have all the good traits of Italians,
 plus extra gentleness, less swarming,
 more prolific, longer tongues, less
 robbing and more dependable workers. Win-
 tered out of doors, and bred in a climate like
 their native land—severe winters, cold windy
 springs—thus insuring their good qualities.
 Breeders from the mountainous Province of
 Terek.

CARNIOLANS

Best of winterers, very gentle, very prolific
 at all times and most excellent workers. A
 Canadian customer secured an average of
 400 pounds extracted spring count. Others
 nearly as good. My own best average 180
 pounds in three weeks. My own and Jan
 Strgar imported strains.

Prices of both races:

1 Untested Queen	\$.80
6 Untested Queens	3.50
12 Untested Queens	6.50
1 Tested Queen	1.25

Both these races give better results in
 northern and western sections of our country
 where the flow comes early. Use some Cau-
 casians or Carniolans among your Italians.
 Both these races will improve your Italians
 in gentleness and honey gathering. Depres-
 sion times necessitate your using the most
 dependable bees along with short cuts in
 management.

Albert G. Hann, Glen Gardner, N. J.

Open a hive containing
 the bees, with the

B. B. Pliers at your
 ease.

The B. B. PLIERS and HIVE TOOL COM-
 BINED are mailed for \$1.00, from
CALIFORNIA BEE & TOOL CO.
 810 W. Pedregosa St., Santa Barbara, Calif.

Mott's Northern Bred Italian Queens
 Practically non-swarming

Guaranteed purely mated or a free
 queen, means tested in the end.

July, 75c each; twenty-five, \$17.50;
 one hundred, \$65.00. Select tested, \$2.00,
 \$3.00, \$5.00; fair to good breeders. Vir-
 gins, three for \$1.00. Free list with tes-
 timonials. Satisfaction guaranteed.

E. E. MOTT & SON, Glenwood, Michigan

A Wise Beekeeper

Will produce less honey during these dull times, but will
 divide his colonies to make increase and fill every hive he
 can get and have a fine young queen at the head of each
 colony that he may be ready for the good times that are sure
 to come in the not distant future. Our revised book "About
 Bees" gives the best methods of making increase and gives many pointers on the
 management of bees both for the beginner and the advanced beekeeper. A card will
 bring it to you. If you requeen with

**Jay Smith's
 Queens**

you will be delighted as thousands of others have been. As
 one beekeeper writes, "I consider the money I have paid for
 your queens the most profitable investment I ever made in
 my life, for your bees get twice as much honey per colony
 as the rest of my bees, and they are so gentle and so beauti-
 ful that, in addition to the extra profit derived from them, I
 get a great kick out of life in working with them."

Prices—Untested, \$1.00 each. Tested, \$2.00 each. Breeders, \$7.50 each.
 If you need some fine light amber extracted honey for your trade, I can supply you.
 Price in case lots, 6c per pound.

JAY SMITH .. Route Three .. **VINCENNES, INDIANA**

Mention the American Bee Journal When Writing Advertisers

Looky Here Large, Vigorous, Pro-
 lific, personally reared **QUEENS**

ITALIANS—One or two, 35c each; three for \$1.00; four or more, 30c each
 CAUCASIANS—50c each, any number

EVERY QUEEN GUARANTEED TO PLEASE

ROY S. WEAVER & BRO., Navasota, Texas

QUEENS BRIGHT ITALIANS QUEENS

25c each in lots of 10 or more each **25c**
 30c ea. for less than 10

Never had disease. Health certificate furnished. Drones excluded. Generous overweight. Safe
 arrival and satisfaction guaranteed.

GARON BEE COMPANY, Donaldsonville, Louisiana

The POSTSCRIPT

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

From Florida comes a can of orange honey sent to me by Dr. Waldo Horton, the genial president of the Florida Beekeepers' Association. Orange honey is famous and commands a premium in the markets. The fact that the quantity available is limited gives the beekeepers in orange districts a chance to capitalize its reputation and secure a better price.

To my taste orange honey is no better than honey from many other sources. It has a pronounced flavor that is a bit too strong for me. There is also a very decided aroma. I wonder sometimes whether the great popularity of orange honey may not come from the name. Oranges are associated with sunshine and flowers, and most folks living in the colder regions have a longing to live in such surroundings. I would like to see the experiment tried of selling orange honey under some other name to see whether it retained its popularity.

Florida beekeepers are beginning to appreciate the advertising value of their orange honey and to offer it in special packages to the tourist trade.

Getting the Price

Those beekeepers who have gone to so much trouble to prevent granulation of their honey will read with interest the story told by S. F. Haxton of the sale of granulated New Zealand honey in a Philadelphia store at 75 cents per pound. It gives us something to think about when New Zealand honey can come halfway around the world, pay a duty and sell in our own markets at two or three times the price our domestic honey brings. The surprising thing is that this granulated honey from abroad sells while our own product remains unsold on the shelves beside it.

Controlled Mating of Queens

We read with much interest that Harry Laidlaw is continuing his experiments in hand-mating of queens at the Southern States Bee Culture Laboratory. When his first success was announced several years ago, beekeepers were incredulous and felt that some mistake had been made. Then came Watson's mechanical mating, which was demonstrated before a number of witnesses at Cornell University. With continued experiment by both methods much progress has been made, until we may soon expect a dependable method of controlled mating which will insure success in scientific breeding of bees.

A Practical Observer

I like the way that man Alfred H. Pering writes. He impresses me as a beekeeper who uses his eyes and understands what is going on among his bees. Pering went to Florida for his health and seems to be permanently located in the South.

Our industry owes much to men of this type, who spent so much time in the study of bee behavior. The present generation of bee men seem more interested in commercial honey production, but fortunately a few serious students remain. The depression is turning the attention of many people to things which they can do at home, and gardens and bees are far more popular than they have been during the rich years. Perhaps it may result in a revival of the old-time interest in the bees as a source of study as well as a source of honey.

Off to the Farm

For the first time in several years I am looking forward to spending several months continuously at my Iowa farm. During the past fifteen years my visits there have

been infrequent and of short duration. It will be a delightful experience to be able to watch the bees bringing in their loads of honey, to gather fresh berries and vegetables from the garden, and to go to bed at night tired from physical exertion. We never fully appreciate the advantages of things with which we are surrounded until we get away from them for a time. The old farm looks very attractive after one has been away long enough to forget the annoyances and weariness that are inseparably connected with it. I am told that there is a very decided "back to the land" movement from the cities. One merchant recently told me that he noticed a very substantial increase in the sale of textbooks for the rural schools and on enquiry was informed that families had recently moved into several farm houses which had long been unoccupied.

We find many successful beekeepers who formerly were engaged in some indoor occupation in the city. Such persons are usually most happy in their changed surroundings.

Bitterweed

Numerous comments on bitterweed honey coming to this office remind me of my own first experience with it. It was about thirty years ago, in the Ozark region of south Missouri. A beekeeper from Iowa had recently located there and secured a fine crop of white clover honey. Knowing nothing of bitterweed, he left it on the hives until late summer. In the meantime the bitterweed came into bloom and the bees filled every empty cell with the bitter honey. I bought some of it, but could not eat it. It was as bitter as quinine. Beekeepers who live in regions free from unpalatable honey hardly realize the advantage.

Another Bee Book

Members of our staff have been much interested in the new bee book by E. B. Wedmore, which is reviewed elsewhere. He has been able to prepare a book which is useful in both England and America, something not easily accomplished because of the difference in the common practice of the two countries. It is a large volume and sells at \$5.00. Every serious student of beekeeping will want to add this book to his reference library, since it contains so much material from such widely different sources.

So much has been written about bees and beekeeping that it is difficult for an author to bring either a new viewpoint or new material to his reader. Wedmore has of necessity reviewed the old, but he has also brought in the important things which are new.

Rains

It is refreshing to hear that rain has fallen in most of the localities which have been suffering from drought. After two rather disastrous seasons because of dry weather, the coming of the rains is most welcome. In this vicinity young white clover is coming up everywhere, and if the weather continues favorable there is every prospect that next year will be a real honey season. In many places the rains came too late for this season's crop.

Springs that have been dry are running again, grass is green where last season the fields were parched, and nature has taken on a more normal appearance. Dry weather is one of the most discouraging things for the farmer and one which he is helpless to improve.

Direct Selling

More stories of men who are succeeding in selling their honey by direct solicitation are coming to us. Roadside stands serve to move large quantities. Peddling, whereby the beekeeper gives a sample to his prospective customer and answers questions in person, is building many a new market.

Frank C. Pellett.